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Laboratory Section Meeting
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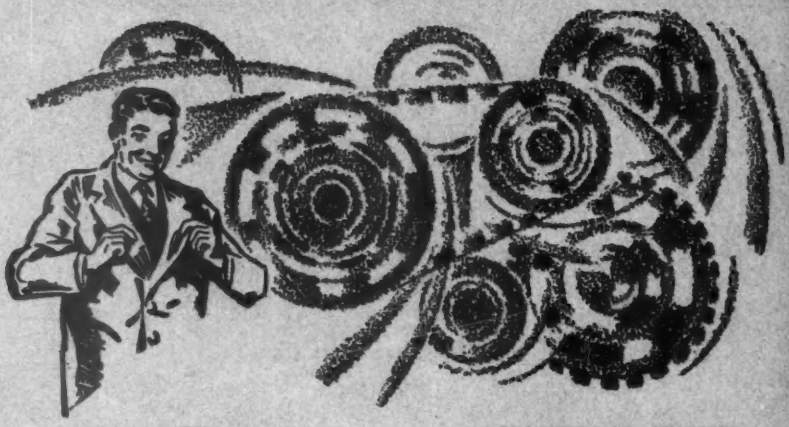

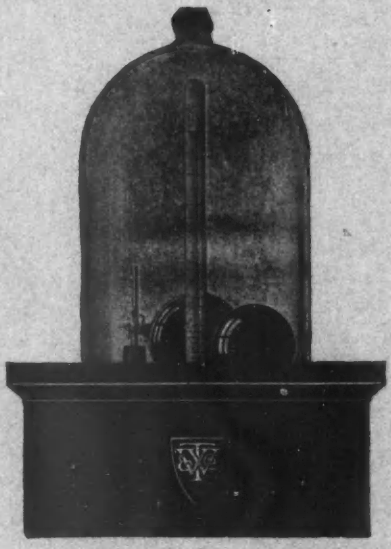

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CANADIAN PUBLIC HEALTH JOURNAL

VOL. 25 November, 1934 No. 11

The Place of Industrial Hygiene in a Municipal Health Programme*

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IN the minds of many sanitarians the term "industrial hygiene" is held as synonymous with the control of diseases due to occupation. It is my purpose to present a broader conception of industrial hygiene than this, for occupational diseases, although important, do not take an especially prominent place in either the morbidity or mortality experience of industrial workers. An examination of the vital statistics of industry will show that industrial workers suffer from the same diseases as the population in general. In fact, the great bulk of the adult population is composed of industrial workers. It would seem logical, therefore, to consider industrial hygiene as bearing very much the same relationship to adult health that school hygiene does to child health. The parallel, however, cannot be carried indefinitely for there is a most important and significant difference between the school and workshop; the one is an activity of government, whereas the other is an activity of private interests. From the standpoint of the health department, this differentiating point makes the approach to school children far easier than the approach to industrial workers.

From the community standpoint, it is believed that health work among children is likely to be productive of more far-reaching results than health work among adults and it is unlikely that any enthusiastic promoter of adult health would suggest a curtailment of the child health programme in favour of adults. This concession to the importance of child health activities does not mean that improvement in the field of adult health is not worth striving for and one should not forget the fact that the death of an adult after the expensive training which even the lowliest now receives is a serious economic loss to the country.

In the last three decades the civilized world has witnessed a profound change in the life expectancy table. In Canada the expectation of life of an infant at birth has been increased during the twentieth century by nearly ten years, an effect which has probably a variety of causes, not the least of which is undoubtedly the conscious efforts of sanitarians.

**Presented before the Section of Industrial Hygiene at the Twenty-Third Annual Meeting of the Canadian Public Health Association, Montreal, June, 1934.*

An analysis of mortality tables does not bring as much comfort to us who have survived the hazards of infancy and childhood as might be supposed. In Table I I have set down deaths and death rates in Canada of the population under 20 years and over 20 years. An examination of the table shows that from 1922 to 1931 there has been a continuous decline in mortality in the population under 20 years from a rate of 8.5 per 1,000 to a rate of 5.8 per 1,000. In the group over 20 years no such decline has occurred and actually the rate of 1931 is only fractionally lower than that of 1922 (11.7-11.9). In 1930 the rate was 12.2 per 1,000.

TABLE I

DEATHS AND DEATH RATES IN THE 1921 REGISTRATION AREA OF CANADA* ACCORDING TO BROAD AGE GROUPING FROM 1921-1931

Year	Population under 20 years	Deaths under 20	Rate per 1,000	Population over 20	Deaths over 20	Rate per 1,000
1922	2,711,654	23,044	8.5	3,823,155	45,984	11.9
1923	2,743,515	22,460	8.2	3,898,819	47,722	12.2
1924	2,775,376	20,524	7.4	3,974,483	45,673	11.5
1925	2,807,237	19,804	7.1	4,050,147	46,673	11.7
1926	2,839,098	20,265	7.1	4,125,811	49,938	12.1
1927	2,870,959	17,203	6.0	4,201,175	51,914	12.3
1928	2,902,820	18,776	6.3	4,277,139	53,649	12.5
1929	2,934,681	20,723	7.1	4,352,803	55,671	12.8
1930	2,966,542	19,453	6.6	4,428,467	53,908	12.2
1931	2,998,401	17,377	5.8	4,504,130	52,653	11.7

*All provinces except Quebec.

TABLE II

EXPECTATION OF LIFE (MALES) IN ENGLAND AND WALES AT SPECIFIED AGES

	0	10	20	30	40	50	60	70	80	90
1891-1900	44.13	49.63	41.02	33.07	25.64	18.90	12.93	8.05	4.62	2.58
1901-1910	48.53	51.81	43.01	34.76	26.96	19.76	13.49	8.39	4.86	2.56
1910-1912	51.50	53.08	44.21	35.81	27.74	20.29	13.78	8.53	4.90	2.87
1920-1922	55.62	54.64	45.78	37.40	29.19	21.36	14.36	8.75	4.93	2.82

In Table II is presented the life expectation of males in England and Wales over a period of 40 years. This indicates a similar trend in mortality, namely, a pronounced increase in expectation of life at birth and in the younger years and a very modest improvement in the older years. In England and Wales the expectation of life of an infant at birth has been improved to the extent of 11.5 years, whereas the expectation of life of a man of 40 shows an improvement of only 3.5 years. These facts seem to warrant a more serious consideration of adult health than has been given in the past. Any effective programme of health promotion in this field is inevitably bound up with industry.

In considering the part which the municipal health department may play in the field of industrial hygiene, a clearer conception of the problem may be had if some idea of an adequate programme of industrial health is presented. As in many fields of public health, there are certain environmental factors which may be controlled without the conscious participation of individual citizens; such things as water supplies, food supplies, sewage disposal, etc., need only the general support of the taxpayer to be adequately controlled. In industrial hygiene these environmental factors involve sanitation, lighting, ventilation, control of hours of labour, etc., all of which affect the health of the industrial worker to an important degree, and if these environmental factors were adequately supervised an improvement in the vital statistics of our adult population would unquestionably occur. It is my opinion, however, that even greater results could be anticipated from a service to adults similar to that offered to school children by the school health service. This type of activity is not impersonal like the control of environmental conditions but involves the personal co-operation of the individual concerned.

Briefly, it is suggested that the most important agent in improving adult health is an industrial health service as provided by a properly organized industrial medical department. The results achieved by many such departments would appear to justify this statement and the fact that industry for the most part is conducted on the basis of private ownership should not prove an insuperable obstacle to the public authorities in promoting medical departments in industries not already provided with them.

In supervising the health of the industrial population we can divide the programme into two major sections and list under each the important activities:

1. *Control of Environmental Factors*
   - Ventilation
   - Illumination
   - Seating
   - Sanitation
   - Occupational disease agents
     - Poisons
     - Dusts
     - Bacteria
   - Accident hazards

2. *Promotion of Personal Hygiene through Industrial Medical Departments*
   - Physical examination before employment and periodically
   - Treatment of accidents
   - Free access to physician for consultation and treatment of disease
   - Visiting nurse service
   - Health education of employees

The question of municipal responsibility in this programme is not easily answered. In the control of environmental conditions, not only is a well trained personnel required, but extensive laboratory equipment is needed for the detection of occupational disease agents. It is apparent that small municipalities could not easily afford an extensive expenditure for such purposes, particularly if only one or two industries were situated in their territory, and from the standpoint of economy a service to small municipalities could better be supplied by

the provincial authority, which could also serve industries in rural areas. Once the provincial authority has set up these services it is a moot point whether large municipalities would be justified in duplicating them.

In an effort to determine the attitude of health authorities in this matter, letters were written to a number of American cities and several letters were sent also to certain state and provincial authorities. From the replies received it was evident that few of the writers had as broad a conception of industrial hygiene as that which I have tried to present to you. With only one or two exceptions, all regarded the programme of industrial hygiene as dealing only with environmental factors and ignored what to me is the more important part of the programme—the promotion of personal health through industrial medical departments.

So far as the control of industrial environment is concerned, the preponderance of opinion was to the effect that this should come under the province or state authority for the reasons already alluded to. Two writers, however, differed substantially from the prevailing view and two took up a middle position.

One of the writers, formerly health commissioner for a very large American city, now professor of public health in a university in that city, expressed the view that all conditions detrimental to health were the concern of the municipal health departments and that the surrender of control of occupational hazards to the state authority would likely result in a superficial service, due to the fact that the state authority is frequently remote from the problem. Precedent in other fields of public health activities lends considerable support to this view; e.g., in the control of water and milk supplies it is the usual practice in the larger cities to duplicate the facilities of the state or province and the same is true of bacteriological laboratories.

Another writer, health commissioner of a large city in a state where industrial activity is confined largely to that particular city, took the stand that the state would be unlikely to develop an adequate programme of industrial hygiene, and for this reason the municipality was justified in proceeding with its own organization.

A third writer, an official of the United States Public Health Service, wrote as follows:

"It is our feeling that the improvement of the general health status of the industrial worker is a public health problem and as such should be a function of a city department of health, as well as a state department of health."

A fourth writer, an official of a provincial department of health, expressed himself in this way:

"I think that if municipal health organizations entered the field of industrial hygiene, they should emphasize the importance of health supervision by physicians and nurses employed by industry and working in co-operation with community health agencies, particularly the health department and their nurses."

It was evident from the other letters that the question of industrial hygiene had not given most of the municipal health officers much concern and most of

them were content to surrender to the territorial authority any jurisdiction they might have in the matter.

An adequate set up for control of environmental conditions in industry can be set out fairly readily. A staff of well trained inspectors is necessary to insure the observance of legislation, a safety organization should be provided to promote accident prevention, and a staff of experts should be appointed to investigate occupational hazards.

Logically these activities fall under the jurisdiction of three departments of government—the department of labour, the workmen's compensation commission, and the department of health. This may seem at first to be an undesirable complication of administration, but inasmuch as the functions are different there should not be a serious clash if reasonable co-operation between departments can be secured. Once principles and standards are set by competent authorities, the control of environmental conditions becomes largely a question of engineering. The programme of accident prevention has a rather special technique and the investigation of occupational hazards is in essence a research project requiring well trained physicians and chemists.

Primarily these activities come under the jurisdiction of provincial governments but there are several cogent reasons why consideration should be given to the feasibility of delegating authority in this matter to municipalities. One of the chief objections is the matter of expense and this would appear at the present time to be a real objection in most municipalities. However, in larger municipalities the item of expense ceases to be as important a factor, since, under provincial control, branch offices may be required in any case. The fact that the municipality is likely to be more vitally interested in its own problem is an argument of real weight in favour of decentralizing control.

The matter of promoting industrial medical departments has not, to my knowledge, been seriously considered by public authorities, largely on account of the fact that industry is carried on by private interests. It is an accepted principle that the state has a right and a duty to promote a healthy citizenship, and the question of public or private ownership should not vitiate this principle. It is suggested, therefore, as a matter worthy of serious consideration, that both the provincial and municipal authorities should plan a programme which would stimulate the interest of employers in health services for their employees. An expensive organization is not required for this purpose. All that is needed is adequate personnel.

In the report of the Quebec Social Insurance Commission on the question of industrial hygiene, it was recommended that establishments employing a certain number of persons should be required to organize a medical service and infirmary service and that small industries should be grouped together to share the expenses of the doctor and the nurse. It is probable that the creation within the health department of a bureau to stimulate the development of this type of agency would result eventually in such legislation, but it is suggested that as a preliminary step it would be more desirable to use persuasion rather than coercion in this matter.

In this connection it is perhaps pertinent to note that if the province or municipality desires to advocate health activity in industry, it should first set its own house in order and establish for its own employees a health service which might serve as a model to others.

SUMMARY

1. A study of vital statistics indicates that within recent years much progress has been made in the reduction of infant mortality but substantially less progress in the reduction of adult mortality.
2. This fact would justify serious consideration of an expansion of activities in the field of adult health.
3. A logical approach to the problem of adult health is through industry.
4. The programme of industrial health comprises the control of certain environmental factors and especially the promotion of industrial medical departments.
5. To this end it is believed that each province should organize activities along these lines.
6. In the municipalities under, say, 500,000 population it is suggested that the appointment of adequate personnel and the creation of proper laboratory facilities for the control of environmental factors would not be justified if an adequate provincial organization existed, but these cities might profitably employ personnel for the promotion of industrial medical departments.
7. In larger municipalities consideration should be given to a complete programme of industrial hygiene.

Third Annual Christmas Meeting
LABORATORY SECTION
Royal York Hotel, Toronto
DECEMBER 20th and 21st, 1934
Programme on page 550

Milk Control for the Small Town*

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CITY milk control has become, after years of effort, a practicable procedure. Control methods have been so perfected, requirements have been so nearly standardized, that it is now a simple matter for a city of considerable size to provide a satisfactory supervision of its milk supply, including inspection of herds, dairies and pasteurization plants, and laboratory examination, at a reasonable cost. Pasteurization, the all-important last line of defence against milk-borne infection, is so rapidly gaining ground that, before long, undoubtedly all of our larger cities will be provided with fairly safe milk supplies.

Despite this rapid progress in city milk control, however, comparatively little has been done to improve and safeguard the small city or small town milk supply. The reason is not far to seek: city control methods become too costly when practised on a small scale; regular inspection of the herds and dairies of the usual multiplicity of small dealers distributing milk in these communities is, economically, not feasible; pasteurization by very small dairies is impracticable,—the consumer will not pay the greatly increased cost; and municipal laboratory service is out of the question.

It is unnecessary to stress the importance of this unsolved problem of small town milk control. We are only too cognizant of the fact that our enteric disease incidence has shifted largely from city to town and country, and that much of this enteric infection is milk-borne. Occasionally we are able to trace the source of some of the other common infections to milk. We know that tuberculosis and, now, undulant fever, are frequently transmitted by milk. How often we fail to associate milk-borne infection with milk we do not know. But there is no escape from the conclusion that the solution of this problem of community milk control is imperative.

Laboratory Control

If we admit, for the moment, that the small town cannot be expected to effect satisfactory supervision of its milk supply, we may next consider the possibility of assistance from the province or the state. The province cannot undertake regular inspection of herds and dairies, it cannot go into the business of pasteurization, but it usually has available central or branch laboratories which may be utilized for examination of milk samples.

Some years ago, the Laboratories of the Quebec Provincial Bureau of Health attacked the problem from the laboratory standpoint. Municipalities were offered outfits for sending samples by express (express charges to be paid by the Laboratories), examination of samples, and classification of distributors according to the results obtained. Some towns accepted this offer,

*Presented at the Twenty-Third Annual Meeting of the Canadian Public Health Association, Montreal, June, 1934.

but they were few in number; the great majority refused to take the trouble to collect the samples.

From the results obtained by this tentative effort, however, there were certain rather striking indications:

1. Usually the general milk supply, if unsatisfactory, was markedly improved immediately following institution of this service.
2. A surprising uniformity in the quality of milk of each individual distributor, from period to period, was revealed.
3. The plate-count of a considerable proportion of the milk sold by small distributors was, by this method of control, readily lowered to a satisfactory figure.

It must be remembered that the small distributor, although he may not possess an elaborate equipment, usually has the time to give some care to the washing and sterilizing of his utensils and to the cooling of his milk. In consequence, whether he delivers milk in a small town or in a city, he can, with reasonable effort, produce a milk with a fairly low count. On the other hand, the dealer whose business has expanded to the point where he is attempting mass production with insufficient equipment and insufficient help,—the dealer who frequently supplies raw milk to the larger city plants,—is the one who usually supplies high-count milk, unless restrained by city regulations and close inspection.

Although some success was obtained from the system of long-distance laboratory control described, it was not until the establishment on a considerable scale of county health units in the province that a comprehensive estimate of the quality of the milk supply of the smaller towns and cities could be obtained. As these health units increased in number, the milk samples collected by their sanitary inspectors increased from year to year. In 1932, 2,417 samples of raw milk were collected in about 130 communities of less than 5,000 population. In the year 1933 this number was nearly doubled.

From the records of the results obtained from these samples the following summary is presented which indicates the quality of raw milk sold in the 98 small towns from which samples were collected both in 1932 and in 1933.

TABLE I

RAW MILK COUNTS FROM 98 TOWNS UNDER 5,000 POPULATION

Year	Number of Samples	Percentage of Counts		
		Under 50,000	50,000 to 300,000	Over 300,000
1932	2128	64	24	12
1933	2596	70	24	6

It must be remembered that the great majority of these samples were sent by express and were from 6 to 24 hours in transit before reaching the laboratory, and that few samples were collected during the colder months of the year.

These figures are quite representative of all the results obtained from

small town supplies. Naturally, there was found a great variation in the quality of the supplies of different communities. In many, the supplies were uniformly satisfactory at the first examination; in other towns the general supply was found to be very poor in quality; a marked improvement was usually noted in these poor supplies, however, after the first or second sampling.

It is evident, from the results shown, that the sanitary quality of the small town milk supply may, by this method of laboratory control, coupled with a reasonable educational effort, be raised to and maintained at a fairly satisfactory level, when measured by the plate count. As a first step toward solution of the problem of safe milk for the small town, laboratory control probably yields a greater return for a limited expenditure of money than any other method. It is a particularly effective method when linked with the county health unit, the officers of which may establish personal contact with the distributors.

PASTEURIZATION

The plate count of a raw milk supply, however, does not tell the whole story. Experience has amply demonstrated that, regardless of the care and effort expended to produce a safe raw milk, accidental infection is all too frequent. In consequence, although the laboratory control, as described, may effect much improvement, it is not sufficient to ensure the safety of the milk distributed. In other words, we again are faced with the problem of pasteurization of the community milk supply.

The crux of this problem may be briefly stated: the individual distributor cannot be depended upon to provide pasteurization, for his supply is too small to warrant the capital outlay and the cost of operation. Nor may any reasonable success be anticipated from an attempt to bring the numerous distributors together to form a "co-operative" or "pool". The difficulties involved in effecting a merger of such individualistic members of society are, practicably, insurmountable. In consequence, we cannot expect pasteurization to be provided by the distributors, either singly or collectively. How, then, shall it be provided?

The obvious answer to this question is that the municipality should arrange for the pasteurization. Here, however, a multitude of questions arises. How is the pasteurization to be effected without disrupting the milk distribution business? Must in-the-bottle pasteurization be employed, or will other methods suffice? Shall the whole cost of pasteurization be passed on to the consumer, or shall the municipality bear part of the cost? How shall the raw supplies and the pasteurization process be controlled? Although no definite answer to any of these questions may be advanced, a brief consideration of some of the principal points involved may serve to stimulate discussion.

Let us assume, for the moment, an enlightened community which is willing to pay a reasonable charge for the protection furnished by pasteurization. The arrangement for municipal distribution which will least disturb the business of milk production and distribution in the community is, perhaps, the following:

1. The municipality to require that all milk sold in the municipality be pasteurized.
2. The municipality to construct, with municipal funds, a pasteurization plant.
3. The municipality to pasteurize each distributor's milk brought to the municipal plant, and to return it to the distributor after pasteurization.
4. Cost of operation, including interest on capital cost and depreciation, to be distributed equitably.

Taking up some of the more important of the details of this proposed arrangement, it will best serve our purpose to consider, first, the type of supervision which may be exercised over such a municipal pasteurization plant. It is our opinion that control of the pasteurization process may be entrusted to the Provincial Bureau of Health, which at present supervises the operation of privately owned plants; this phase of the supervision should offer no serious difficulty. The control of the raw milk supplies coming to this plant, on the other hand, might prove a difficult problem. It is probable, however, that occasional examination of raw milk samples, by the Provincial Laboratory, would go far toward ensuring raw supplies of fair sanitary quality.

No amount of intermittent control of this character, to be sure, can be depended upon so to equalize the quality of the various raw milk supplies as to induce either the distributors or the consumers to agree to a pooling of the different raw milks. Variations in the fat content of these milks, as well as in their sanitary quality, would doubtless preclude the advisability of attempting to mix the raw supplies of the various distributors. In other words, preservation of the identity of the milk of each distributor would, no doubt, be demanded.

This requirement immediately raises the question of the type of pasteurization to be employed. If the identity of each raw supply is to be preserved, the use of the in-the-bottle method of pasteurization is imperative; the vat, or pocket, method cannot serve the purpose of municipal pasteurization. Although, to the best of our knowledge, development of commercial in-the-bottle pasteurization has been somewhat retarded, it is probable that, given a demand for a small pasteurizer of this type, with reasonable allowance as regards cost of operation, the appearance on the market of satisfactory equipment would not be long delayed.

Distributing the Cost

The most contentious feature of the proposal is the equitable distribution of the added cost of pasteurization. At first glance, it seems quite reasonable to suggest that the consumer bear the whole cost of such protection of his milk supply. It must be remembered, however, that an epidemic of communicable disease is no respector of persons. In practically every outbreak due to milk, a proportion, often a considerable proportion, of the so-called non-consumers in the community become infected through contact, through infection of other foods by infected persons, convalescent or permanent carriers, or by fly infection. Furthermore, many persons who rarely buy a bottle of milk, or

even a glass of milk, and who therefore may be classed as non-consumers, nevertheless do consume, more or less frequently, milk or cream bought by others. In consequence, it must be admitted that the protection provided by pasteurization of a milk supply benefits not only the immediate purchaser of the milk, but the whole community.

In this connection, it is interesting to consider the anomaly presented by our customary attitude toward the distribution of pasteurization costs as compared with that of food inspection costs. We have always considered general food inspection as a public responsibility; it is never passed on to the immediate purchaser. Furthermore, when milk inspection is included in the food inspection programme, its cost is again borne by the general public. The purpose of food inspection and milk inspection, however, is identical with the purpose of pasteurization,—the protection of the public health. Why then should we adjudge that the whole cost of milk inspection should be defrayed out of the public purse, but that the whole cost of pasteurization should be borne by the individual purchaser?

It is to be noticed that this question becomes increasingly important as the volume of milk to be pasteurized in a given community is decreased. The large city plant can usually pasteurize milk at a cost of under one cent per quart, and the consumer may assume this cost without undue hardship. But when the total volume of milk is small, as in the average village or small town, the cost of pasteurization may reach the figure of two cents or even more per quart. Here the charge for pasteurization bears heavily upon the family which is often least prepared to assume this additional cost, the large family, with several children consuming a considerable amount of milk daily.

Would it not be more reasonable to request the community at large to contribute toward the cost of pasteurization when this cost exceeds a certain sum, say one cent a quart? The community at large certainly benefits from pasteurization of the milk supply, and it is only fair that it should pay for the protection provided. If this contention that the community assume its share of the additional cost is admitted, the problem of pasteurization of the small town supply does not appear hopelessly impossible of solution. It is, on the contrary, quite possible that in many instances a milk supply totalling only 50 to 100 quarts per day might be pasteurized by the municipality at a cost to consumer and municipality which would be acceptable to the average intelligent community. To be sure, trials and tribulations in plenty are in store for the health organization which first attempts to induce the small town to accept such a pasteurization programme. But is there any alternative course?

Some such solution of the problem of ensuring a safe milk supply to our smaller communities is, in our opinion, inevitable. As has been indicated, central laboratory control of raw milk supplies can accomplish much, but the ultimate solution resides in the adoption of general pasteurization. To attain this end we must abandon our traditional attitude that pasteurization concerns only the immediate purchaser and accept the fact that provision for this protection of the milk supply is, in part at least, a community responsibility.

Recent Health Legislation in Canada

A review prepared by the Editorial Board in co-operation with the Provincial Departments of Health

THE passing of new legislation by the various provinces each year is, of course, of primary importance to the provinces concerned, but it is often of real interest to medical officers and departments of health of other provinces. Believing that a brief survey of the major amendments and of the more important new regulations would be helpful, the Editorial Board, through the co-operation of the Provincial Medical Officers of Health or Deputy Ministers of Health, has prepared this review.

NOVA SCOTIA

Tuberculosis Control

(*Amendment to the Public Health Act*)

Nova Scotia possesses at present 544 beds for tuberculosis patients. Units have been established in connection with local hospitals. Every effort is being made to institutionalize cases from poorer homes. The Provincial Government pays approximately two-thirds of the maintenance cost of all patients who enter the Nova Scotia Sanatorium. The remaining one-third is required to be paid by the patient or by the municipality.

By Chapter 23, an *Amendment to the Nova Scotia Sanatorium Act*, open cases may be sent to the sanatorium without the consent of warden or clerk, or mayor and clerk, as the case may be, by the medical officer of health.

By Chapter 42, an *Amendment to the Act relating to Local Hospitals* provides that the government shall contribute a per diem grant of one dollar per patient for those admitted to certain local hospitals with separate and approved sections for the care of the tuberculous; and for those patients who enter these sections and make no satisfactory arrangements for payment the hospital may collect an additional one dollar per diem from the municipality in which the patient resides. It is not necessary to obtain the consent of the municipal authorities for the admission of patients to these units.

Milk Control

(*Chapter 38, an Amendment to the Public Health Act*)

Pasteurization is defined, sterilization of cans, bottles and equipment is required, and milk sold in stores must be stored in a refrigerator. Bacterial count of raw milk, when sampled at the producer's milk house, must not contain more than 50,000 per cc. from May to October and not more than 30,000 between November and April. Pasteurized milk shall not contain, at any time prior to pasteurization, more than 200,000 bacteria per cc. and after pasteurization, at any time prior to its delivery, more than 30,000 per cc. The process of pasteurization and bottling shall be subject to inspection by the medical health officer, or by an inspector appointed by the local board or

by the Minister of Health. The Minister of Health may have recording thermometers placed on any pasteurizing plant. Keys to the thermometers may be kept by such member of the Department of Public Health as the Minister may designate and such members may have free access to the plant.

DUTIES OF THE MINISTER AND THE CHIEF HEALTH OFFICER

(*Chapter 37, Amendment to the Public Health Act*)

The Minister of Public Health is empowered to make regulations for the prevention and mitigation of contagious diseases which shall have the force of law until disapproved by the Governor-in-Council, when published in the Royal Gazette.

Provision is made for the appointment of a Chief Health Officer whose duties are set forth in this amendment. The Chief Health Officer, by amendment to the Vital Statistics Act, is made Deputy Registrar General.

COMMUNICABLE DISEASES

Pediculosis is included in the list of communicable diseases and diarrhoea is added as a reportable and notifiable disease, in addition to dysentery which appeared in this section.

QUEBEC

SANITARY SERVICES IN FOREST, MINING AND ROAD CAMPS

(*Amendment to the Public Health Act*)

Responsibility for the control and supervision by inspectors appointed for the inspection of sanitary conditions and by persons engaged in road work, saw mills, etc., is now enumerated under Section 8 of the Act relating to the duties of the Director and officers. By an amendment, every camp is now required to erect buildings for housing in accordance with specimen plans supplied by the Provincial Bureau of Health, and by a further amendment camps may be destroyed after fifteen days' notice if the necessary improvements in sanitation are not made, and necessary legal proceedings may be taken against the limit holders, mine owners, or road contractors.

GERM CARRIERS

(*Amendment to the Public Health Act*)

No carrier may engage in the handling of milk or other food product intended for human consumption. When it is shown that such a person is a carrier, he must forthwith cease the handling of food. A germ carrier is regarded as a contagious case and is subjected to quarantine and protective measures.

COMPULSORY IMMUNIZATION

(*Amendment to the Public Health Act*)

When it is ascertained that an epidemic of typhoid fever or diphtheria exists, the Lieutenant-Governor-in-Council may, at the request of the Director, order either anti-typhoid vaccination or diphtheria immunization.

HEALTH UNITS

(*Revision of the Health Units Act*)

The Health Units Act of 1925 has been replaced by a new chapter in the Quebec Revised Statutes. A number of the Articles have been revised. Municipal corporations in counties where there is a health unit must pay an annual contribution of 1½c. per $100 of the municipal valuation of their territory. Independent municipalities in a health unit must pay the same contribution, but those that have a population of 4,000 or over must pay 2c. per $100. When such contributions are insufficient, the budget of the unit may be completed by the Provincial Treasury. Cities and towns of a population of 2,000 or over in which there is a sufficient public health organization are excepted from the operation of the Health Units Act. Contributions from sources other than these may be accepted. Health units are under the direction and control of the Director of the Provincial Bureau of Health and the health unit medical officers are appointed by the Lieutenant-Governor-in-Council.

ONTARIO

HEALTH UNITS

(*Amendment to the Public Health Act*)

Legislation permitting the uniting of counties, municipalities or districts for the purpose of providing full-time service was passed at the last session of the Ontario Legislature. The duties and powers of the local board and of the medical officer of health are set forth in detail. With the approval of the Lieutenant-Governor-in-Council, the Minister may make recommendations respecting the appointment and tenure of office of the medical health officer, his powers, salaries and duties, and the apportioning of expenses in such proportion as may be agreed upon. The Minister, with the approval of the Lieutenant-Governor-in-Council, is empowered to grant such assistance for the establishment and maintenance as he may deem proper and any such grant shall be payable out of funds appropriated by the Legislature for that purpose.

THE OFFICE OF THE MEDICAL OFFICER OF HEALTH

(*Amendment to the Public Health Act*)

No medical officer of health shall be removed from office except on a two-thirds vote of the council and with the consent and approval of the Minister, who may require cause to be shown for his dismissal. An important additional protection for the medical officer of health is provided in the following clause:

> "No action, prosecution, or other proceedings shall be brought or be instituted against the medical officer of health for an act done in pursuance or execution, or intended execution of a statutory or other public duty or authority in respect of any alleged negligence or default, without the consent of the Minister of Health."

MATERNAL DEATHS

(*Amendment to the Public Health Act*)

Every physician, medical officer of health, superintendent of a hospital,

nurse, midwife, or other person in charge of a maternity case in which the death of a mother takes place from a cause directly or indirectly associated with pregnancy or parturition, is required to report such deaths and causes thereof, according to regulations. A special form is used.

SCHOOL MEDICAL AND DENTAL INSPECTION

(*Amendment to the Public Health Act*)

Provision is made for any school board desirous of entering into an agreement with the local board of health, pursuant to Subsection 2; and if the local board refuses to enter into the same the Minister of Health, after hearing the representations, may direct that the local board shall enter into the necessary agreement.

INSPECTION OF DAIRIES, CHEESE FACTORIES, SLAUGHTER HOUSES, ETC.

(*Substitution in the Public Health Act*)

By the amendments, the medical officer of health is enabled, following the report of a competent inspector, to close premises in which milk and milk products, meat and other food products are prepared or stored. The five sections render more definite the authority of the health officer in these matters.

PREVENTION OF WATER POLLUTION

(*Substitution in the Public Health Act*)

By this substitution for previous sections, it is made an offence to deposit any excremental or polluting material on the banks or adjoining lands of, as well as in, waters intended for domestic use by any municipality.

MANITOBA

A new Public Health Act was passed by the Legislature and was proclaimed September 1, 1934. The old Act consisted of 125 pages, containing 398 sections, while the new Act has but 14 pages and 38 sections. It establishes the Department, outlines its duties, and makes provision for the passing of regulations.

The administration of the new Act and regulations passed thereunder come directly under the supervision of the Minister of Health and Public Welfare. A Provincial Board of Health serves in an advisory capacity and consists of nine members. The Minister himself is *ex officio* a member of the Board. The Minister has very wide powers, conferred in Section 15, to make regulations. These regulations are made on the advice of the Board, confirmed by the order of the Lieutenant-Governor-in-Council, and published in one issue of the Manitoba Gazette.

All appointments of health officers, who must be registered medical practitioners, are subject to the approval of the Board. The municipality may appoint more than one health officer; that is, the municipality may be divided into sections. Once appointed, a health officer holds office during good behaviour and cannot be dismissed except on a two-thirds vote of the council and with the consent of the Board.

Provision is also made whereby a municipality may enter into an agreement with its health officer, or other qualified practitioners, to provide medical care for persons resident in the municipality who, through poverty, are unable to pay.

A municipality may, through the health officer, refer to the Board any matter involving expense. The Board must make a full investigation and may issue an order directing what is to be done.

The Board may, when it deems it desirable, call a conference of all health officers, the expenses of the health officers attending to be borne by the municipalities.

Rigid penalties are imposed on any individual who may sell, publicly or privately, any biological products which the Department supplies free of cost.

Owing to pressure which was brought to bear by certain religious groups, a saving clause was included for the benefit of conscientious objectors to vaccination and inoculation, provided that such persons give to the health officer a statement in writing to this effect. This does not, however, give such persons any privileges in regard to quarantine and isolation.

SASKATCHEWAN

At the February-April, 1934, session of the Saskatchewan Legislature several amendments were passed.

ESTABLISHMENT OF A "HEALTH SERVICES BOARD"

(*Amendment to the Public Health Act*)

This amendment to the Public Health Act provides for a Health Services Board consisting of the Minister of Public Health (Chairman), the Deputy Minister of Public Health, the Chairman of the Local Government Board, the Deputy Minister of Municipal Affairs, and the Commissioner of the Saskatchewan Division of the Red Cross Society.

The Board has power to summon witnesses and require the production of any documents in connection with its inquiries. When the Lieutenant-Governor-in-Council designates relief areas in which health services must be provided, the Board is required to administer any moneys appropriated from the consolidated fund for such relief, and if and when medical relief is discontinued by the Relief Commission, but is still necessary, the Board shall take over this responsibility.

It is required to institute enquiries and collect information concerning (*a*) the needs of the people of Saskatchewan, or any portion thereof, with respect to medical, hospital, nursing, dental and allied health services, including drugs and appliances; (*b*) the advisability of providing facilities for a periodical health examination; (*c*) the operation of the various Hospitals and Sanatoria Acts, the Cancer Commission Act, the Venereal Diseases Act, and the provisions of the Rural Municipality Act relating to the employment of physicians, with a view to the economic administration of health services and the prevention of overlapping therein; (*d*) such other matters as the Board deems

advisable. The information and data so obtained shall be compiled, systematized, and studied by the Board and recommendations made to the Lieutenant-Governor-in-Council respecting the establishment of health services.

The Board is given power to confer with and advise any municipality with respect to the establishment of health services for the municipality; to confer with and advise employers and employees in cities in reference to the same matter; to consider the available health services in the outlying and unorganized portions of the province and make recommendations to the Lieutenant-Governor-in-Council; to consider methods for an equitable distribution of the costs of illness; to recommend to the Lieutenant-Governor-in-Council temporary health services of the province during any period of economic distress; to appoint committees and assign to them such duties as it deems expedient; and to engage the services of an actuary for the purpose of obtaining any information which it may require.

There shall be associated with the Board an Advisory Committee consisting of the Presidents of the following organizations: the Council of the College of Physicians and Surgeons, the College of Dental Surgeons, the Saskatchewan Pharmaceutical Association, the Saskatchewan Hospital Association, the Provincial Council of Women, the Urban Municipalities Association and the Rural Municipalities Association. The duties of this Committee shall be to confer with the Board from time to time concerning matters of interest in relation to health services in Saskatchewan.

This amendment came into force May 1, 1934.

MILK—A PUBLIC UTILITY

(*Amendment to the Local Government Board Act, Part III*)

By this amendment milk practically becomes a public utility, in that the Local Government Board is given power to inquire into any matter relating to the production, supply, distribution or sale of milk.

If by such inquiry it is found that the milk supply in any part of the province is likely to be interrupted or impaired in quality to an extent affecting the public health or convenience, or that measures should be adopted to insure the continuity of an adequate milk supply, the Board may make such regulations as it deems necessary in the public interest.

Among other powers, the Local Government Board has power to prescribe the terms and conditions upon which milk may be received, handled, stored, delivered, processed, kept for sale or sold in any area; to supervise the production, processing, distribution, keeping for sale and sale of milk, including the licensing of persons engaged in the aforesaid work; to refuse to issue a licence where in the opinion of the Board a licence should not be issued, and to cancel or suspend any licence issued. The Board, or anyone authorized by the Board to make an inquiry or report, may enter upon and inspect any place, building, plant, or other property, and inspectors may be appointed to carry out the provisions of the Act.

This legislation should have a very direct bearing on milk sanitation, as it is expected that the Local Government Board will work in close co-operation with the local and provincial health authorities in administering this Act.

RECIPROCITY WITH NEIGHBOURING PROVINCES WITH RESPECT TO THE RESPONSIBILITY FOR HOSPITAL FEES FOR INDIGENT CASES

(*Amendment to the Town and Village Act*)

Subject to the provisions of Subsection 2, this amendment provides that if an indigent person who falls ill and who has been resident in a town for at least thirty days is, on the request of the council or, in case of emergency, without such request, admitted to a hospital in another province which receives aid from the general revenues of that province, the council of the town shall pay to the hospital board its charges for the care and treatment of such person, not exceeding $2.50 per day of his stay in the hospital.

Subsection 2 reads as follows:

"When the Lieutenant-Governor-in-Council is satisfied that reciprocal provisions have been made or will be made by the Legislature of another province, he may by order declare the provisions of Subsection 1 [quoted above] to be in force and to apply to that province."

MUNICIPAL DOCTOR AGREEMENT

A model Municipal Doctor Agreement was prepared to meet the needs of municipalities inquiring for direction in the preparation of contracts. All contracts made by a municipality with a municipal doctor must now be submitted to the Health Services Board for approval. The value, therefore, of a model contract is evident.

ALBERTA

PROVISIONS OF MEDICAL, DENTAL AND SURGICAL SERVICES IN A CITY OR HEALTH DISTRICT

(*Amendment to the Public Health Act*)

The local board of health of any city and the local board of health of any district may, with the approval of the council of the city or town, make provision for medical, dental and surgical services to any person or classes of persons, including all children attending schools, all children of pre-school age, and expectant mothers. The local board of health may employ such physicians, dentists and nurses as it may from time to time deem proper, prescribe the terms of employment, remuneration and duties, and is further empowered to enter into any agreements with any town or school district wholely or partially situated within a health district whereby the local board of health may undertake the provision of any of these services which the board of a town district is under a duty to supply under the School Act. Every agreement shall be for a period of not less than three years and may be terminated by one year's notice, provided that the withdrawal has been sanctioned by a majority vote of the electors.

This amendment came into force April 16, 1934.

NURSING REGISTRATION

(*An amendment to the Registered Nurses Act*)

The degree of B.Sc. in nursing from a recognized university was made the

qualification for registration. The standard of education required of a person commencing a course of hospital training leading to registration is raised from grade 8 to grade 11.

This amendment became operative on July 1, 1934.

HOSPITAL PAYMENTS

(*Amendment to the Municipal Hospitals Act*)

By this amendment a contributing council which pays any amount payable to a hospital board on account of any requisition shall be entitled to receive a discount of 7 per cent per annum for the period between date of payment and due date. The contributing council which pays any amount payable to a hospital board on account of any requisition after the date upon which the same is due shall pay to the board interest upon that payment at the rate of 7 per cent per annum for the period between the due date and the date of payment.

This Act came into force on March 21, 1934.

THE BREAD ACT

This Act makes provision throughout the province for the licensing and inspection of bake shops and defines the term "bake shop" and the various breads which are manufactured.

For parts of the province not included in the corporate limits of any town, city or village, or in any city, town or village which does not have a valid by-law for the licensing of bake shops, the licensing authority shall be the Minister of Health.

Provisions are made for inspection of weight of loaves, etc. The inspectors are to be appointed by the Lieutenant-Governor-in-Council and additional regulations will be made under the authority of this Act. Every member of the Royal Canadian Mounted Police engaged in policy duty shall be *ex officio* an inspector and every inspector appointed by a city, town or village shall have all the powers of an inspector appointed under this Act.

REGULATIONS CONCERNING CONTAGIOUS DISEASES

(*Amendment to the Public Health Regulations*)

The amendments are as follows: the inclusion of infectious mononucleosis in the list of communicable diseases; the addition of a new section (42a) relating to the duty of the local board of health to maintain supervision over any patient suffering from tuberculosis in an infectious form; furnishing the householder and the patient with written instructions regarding the care of sputa, dishes, etc.; and giving authority for the removal of a patient to a hospital or sanatoria when necessary, or excluding such a person from any public place. The regulations also require the local board of health to have contacts examined periodically and to exclude any contact from a public place until a certificate of freedom from tuberculosis in a communicable form is obtained from a medical officer of health.

REGULATIONS RESPECTING DAIRY FARMS, MILK PLANTS, FLUID MILK, AND TABLE CREAM

(*Amendment to the Public Health Act*)

Pasteurized milk, milk, cream, remade milk, cultured milk, homogenized milk and ice cream are defined and standards stated. Important sections relate to branding of milk. No producer of milk can sell or supply milk in fluid form without first obtaining a certificate from the local board of health. No person shall sell milk for human consumption in fluid form without a certificate of registration from the local board of health, which certificate shall be issued only after the standard requirements have been met. Milk plants are required to obtain a certificate before operating. The regulations relate to the health of the producer's personnel and of the milk plant personnel. No milk can be brought to a milk plant from a producer's premises more than thirty-six hours after the milk has been drawn, nor received at a temperature of more than sixty degrees F., except that delivered within two hours of having been milked. Pasteurizing equipment, where used, shall be equipped with self-recording thermometers and the plant subject to inspection. Every application for registration by a producer of milk shall be accompanied by a certificate showing that the applicant's cows have been tuberculin tested and are free from tuberculosis, and a similar certificate filed when applying for a renewal. The regulations specifically state that no person shall sell or offer for sale any milk from cows infected with tuberculosis, nor shall any person use, give away, trade, or otherwise dispose of such milk. The complete regulations are contained in a sixteen-page pamphlet.

BRITISH COLUMBIA AND PRINCE EDWARD ISLAND

No public health legislation was presented at the last session of the Legislative Assemblies of these provinces.

NEW BRUNSWICK

Although there have been no recent amendments to health legislation, changes were made this year in the organization, without amendment of the Health Act, whereby the four District Medical Health Officers, all of whom hold the Diploma in Public Health and have had special training in tuberculosis, will conduct the tuberculosis diagnostic work in their respective districts in addition to their other duties. They also will undertake a limited amount of medical school inspection service in their districts. The six Medical Inspectors of Schools have been appointed Assistant Medical Health Officers to enable them to assist the District Medical Health Officers in carrying out other health services besides medical inspection of schools in their respective districts. The scheme will, it is believed, be conducive to an improvement in the services in that there will be a greater concentration of work and considerable saving in time and money in regard to travel.

Whooping Cough
The Public Health Problem

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School of Hygiene and Connaught Laboratories, University of Toronto*

IN Toronto, 1925 - 1929, 5,880 cases of whooping cough were reported; in the same period 4,535 cases of diphtheria were reported. The number of whooping cough cases reported exceeds the number of diphtheria cases by only approximately 30 per cent. In surveys made, however, notably in London, Ontario,[1] and Hagerstown, Maryland,[2] it was found that 60 - 80 per cent of people give a history of having had whooping cough while only 10 - 15 per cent give a history of having had diphtheria. In other words, approximately 5 - 6 times as many people suffer a recognized attack of whooping cough as suffer a recognized attack of diphtheria. This is not in keeping with the 30 per cent difference in the number of reported cases of these two diseases but is in keeping with general knowledge of their prevalence. One can only conclude, therefore, that the reported cases by no means represent the actual cases of whooping cough and that, in order to form an estimate, even approaching accuracy, of the volume of sickness due to whooping cough one must multiply the reported cases by four or five at least. This gives an estimate of 20,000 - 25,000 cases in Toronto in 5 years, an average of 4,000 or more cases annually—a volume of sickness which in itself forms an important public health problem. Approximately then, at least 4,000 cases a year in Toronto, 20,000 - 25,000 cases in Ontario, is the extent of the public health problem presented by whooping cough *morbidity* in this city and province.

As Figure I shows,[3] the mortality rates from whooping cough over a fifty-year period in Ontario, 1880 - 1933, show no certain evidence of any sustained decline. There is no assurance that the rates, lower than the average, that have prevailed in recent years will continue. Whooping cough was made a notifiable disease in Ontario in 1905 and control was attempted through regulations in regard to quarantine and isolation, but there is no evidence in the mortality rates that the efforts directed at its control have been at all successful. It must be admitted that the mortality rates, as published, do not tell the whole story and that conclusions based on them may be subject to correction, but, in fact, no significant degree of control could be anticipated with but 20 per cent of the cases reported.

Whooping cough mortality has maintained, in general, its previous level, while diphtheria has declined, so that to-day whooping cough claims many more victims than diphtheria, as shown in Figure II, and more than scarlet fever and measles together. If the present

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level be maintained and diphtheria is brought, through immunization with toxoid, to that greater degree of control which we have a right to expect, it is fair to anticipate that whooping cough will

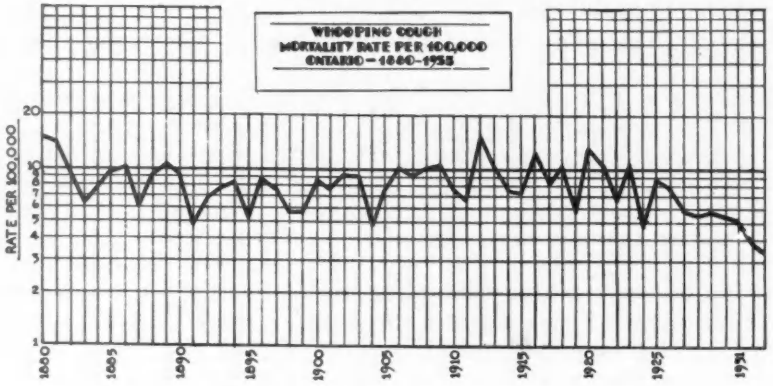

FIGURE I

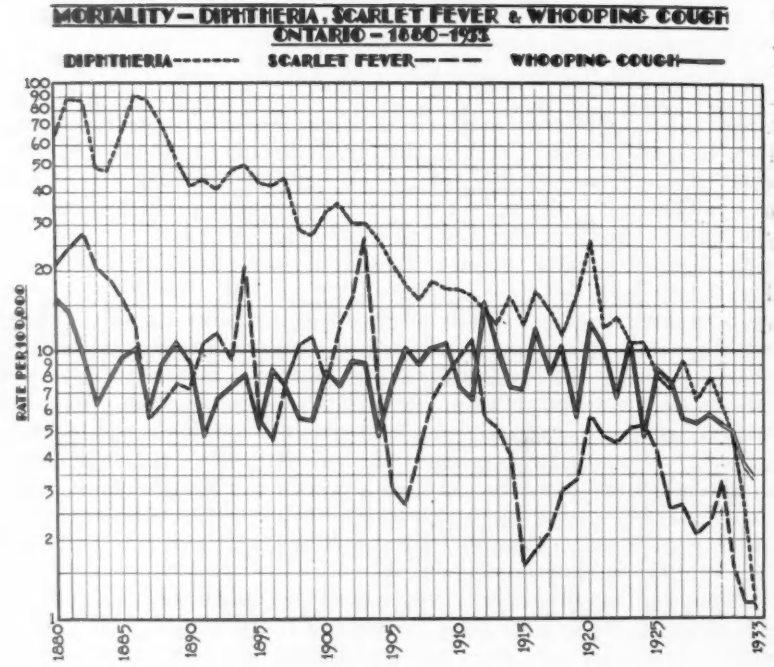

FIGURE II

soon be causing as many deaths as diphtheria, scarlet fever, and measles combined. That, then, is one comparative measure of the public health problem presented by whooping cough mortality.

In the past 5 years, 1929-1933 inclusive, in Ontario, whooping cough has caused 799 deaths, an average of 160 per annum, with annual rates of 3.5 to 5.9 per 100,000. These deaths were provided very largely by the age group under 2 years of age. As Table I shows, over 85 per cent of all whooping cough deaths occur in that early age-group and over 60 per cent occur in the first year. This early onslaught of whooping cough is a striking characteristic and is evident in Table II. In

TABLE I

WHOOPING COUGH

DISTRIBUTION OF DEATHS BY AGE
ONTARIO, 1925 - 1929

Age	Average Number	Per cent
Under 1	136	64
1	48	22
2	10	5
3	6	3
4	4	2
5 - 9	7	3
10 and over	2	1
Total	213	100.0

TABLE II

WHOOPING COUGH AS A CAUSE OF DEATH
(ONTARIO 1925 - 29)

Age	Rank	Average No.	Per cent of All Causes
2nd and 3rd months	6th	36	4.9
4th, 5th and 6th months	6th	38	5.3
7th, 8th and 9th months	4th	29	5.7
10th, 11th and 12th months	4th	23	6.5
2nd year	3rd	48	7.1

the age-group of 1 to 2 months (inclusive), Ontario, 1925-1929, whooping cough is 6th cause of death, accounting for more deaths in that period than in any other 2-month period of child life. In the next 3 months it is still 6th as a cause of death. In the 3rd 3-months, while the number of deaths attributed to whooping cough is slightly less, the total number of deaths in the period has decreased more, proportionately, so that whooping cough is 4th cause of death as it is, too, in the 4th 3-month period. In the second year of life it is 3rd as a cause of death. The early attack is seen, too, in the table of cumulative deaths,

Table III. Diphtheria, for instance, in that period required nearly 10 years of life to overcome the lead which whooping cough assumed in the 2nd year, by which time it had already accounted for twice the total number dying at all ages from scarlet fever and nearly twice the number dying at all ages from measles.

In the past 50 years diphtheria and scarlet fever have shown a definite shifting to older age-groups in the distribution of deaths. Such a shifting is not evidenced in whooping cough. The age distribution of whooping cough deaths is the same in 1925-1929 as it was in 1880-1884. The greater care of the infant and the shielding of it from exposure have been factors, apparently, in this shifting in diphtheria and scarlet fever. These measures have not been sufficient to overcome the infectivity or the ability to spread of whooping cough. The

TABLE III
DEATHS FOR CERTAIN DISEASES
CUMULATIVE BY AGE
ONTARIO, 1925 - 1929

Age	Whooping Cough	Diphtheria	Scarlet Fever	Measles
Under 1	678	52	17	117
" 2	920	160	61	276
" 3	968	301	117	329
" 4	1000	446	158	357
" 5	1020	586	193	384
" 10	1055	1047	312	451
" 15	1060	1157	349	471
All	1068	1250	443	523

fact that smaller families have not resulted in any shifting in whooping cough deaths is evidence that the factor of smaller families does not explain the shift in diphtheria and scarlet fever. The high infectivity, the ability to spread and break down barriers which might influence diseases of lower infectivity, such as, possibly, diphtheria, is shown, too, in the close agreement of rural and urban rates. Rural isolation, at least of late, does not impede whooping cough.

Owing to the lack of reliable data in regard to cases, no calculation of case fatality rates at different ages has been made for this communication. It is common knowledge, however, which is supported by the evidence presented in regard to the concentration of whooping cough mortality in infants, that the younger the child, the higher is the case-fatality when whooping cough is contracted.

The consistent preponderance of female deaths over males is too well known to need comment and does not change the public health aspects of this disease.

No one season of the year can be said to be the whooping cough

season. Its distribution is very irregular, in both case incidence and in mortality.

SUMMARY

In order to obtain an estimate, even approaching accuracy, of the amount of sickness due to whooping cough it is necessary, owing to the incompleteness of reporting, to multiply the number of reported cases by 4 or 5. While approximately 1,000 cases are reported, as an average, annually in Toronto, and 4,000 in Ontario, there are actually more than 4,000 and 20,000 cases in the city and in the province, respectively.

There is little evidence in the mortality data of Ontario that the control measures applied have accomplished any reduction in whooping cough.

Whooping cough at present accounts for 100 to 200 deaths a year in Ontario, more than diphtheria, and as many as scarlet fever and measles together. It is probable that, in a few years, it will be accounting for more than the total from diphtheria, scarlet fever, and measles.

The deaths are concentrated in the first 2 years of life—60 per cent in the first year and 25 per cent in the second. Control measures, therefore, to be effectual must be directed from birth through the very early years of child life.

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REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA* BY PROVINCES

AUGUST, 1934

Diseases	P.E.I.	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Diphtheria	0	6	10	63	17	21	16	0	3
Scarlet Fever	0	25	6	185	130	53	37	17	85
Measles	0	9	8	413	75	127	41	10	5
Whooping Cough	0	15	1	914	606	34	120	31	75
German Measles	0	5	0	2	7	0	1	2	0
Mumps	0	0	0	28	102	10	7	2	33
Smallpox	0	0	0	0	0	0	0	0	1
Cerebrospinal Meningitis	0	0	0	2	2	0	1	1	1
Anterior Poliomyelitis	0	2	0	34	56	1	1	3	5
Typhoid Fever	0	0	11	91	107	13	12	3	17
Trachoma	0	0	0	0	0	0	1	0	8

*Data furnished by the Dominion Bureau of Statistics, Ottawa.

Health Education in a Small City*

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IN order that a municipality may keep abreast of the times, the modern department of health must continually keep the public informed in regard to new and interesting facts regarding health. To do this, every medical officer of health must realize that he has a difficult problem, because the general public, as a rule, are not deeply interested in their own welfare. Until lately the health officer has hesitated to say very much about his own work, so that the average citizen has had no way of knowing the service his health department was doing.

Every commercial firm spends money for publicity purposes; how much is spent depends entirely on the product and how wide the advertising is to be. Why have we health officers not followed this example? Is it that we have been too modest to tell the people that we have a commodity, health, that will cost the public comparatively little but which, as individuals, they can hardly purchase at any price? Fortunately, health education does not need to be expensive or difficult, as there are so many ways in which we may reach the people. Excellent books have been provided at a very small cost which contain a wealth of ideas and a fund of information that we may use. Sometimes the health officer has been known to say that, as he is not doing much health work in this community, and as the Board of Health has not provided much money, it is useless to undertake any effort in health education. In answer to this I would say that the less actual service given a community by the health officer, the more that community needs public health education.

During the past year probably every health officer has been asked to address certain groups in his municipality. What has been your reaction, as a medical officer of health? Have you accepted the invitation at once, or have you lost a golden opportunity to reach an interested group? I think that you will agree that health education must be included in every public health programme, and as you should be the best informed person in your community in regard to preventive medicine, you are the logical one to present this subject to the people.

The past half century has added a great deal to our knowledge of disease prevention and health promotion. As new methods of teaching are developed, we must use them in order to interest the public. Our attitude toward public health education is bound to be reflected in our own communities; if the health officer does not believe in toxoid, for instance, how can he expect the children to be kept free from diphtheria? Or if he is not persuaded as to the value of pasteurization, will the milk in his community be safe for babies? The skilful use of all available methods will not only maintain a favourable public opinion to health work in general, but also will show people that the health officer is keen and willing to work in order to safeguard their health.

**Presented at the Ontario Conference of the Ontario Health Officers' Association, the Canadian Public Health Association, and the Ontario Medical Association, Toronto, May, 1934.*

There are several ways to interest the people in public health education, different methods being used in different places; but the further one enters this field of endeavour the more he realizes his opportunities and finds that no one method is entirely satisfactory, but that the combination of plans will give the best results. There is no doubt that all public health teaching must be positive, non-technical, and, above all, interesting.

PUBLIC ADDRESSES

The first work our Department did in regard to public health education consisted of addresses given by a number of our staff to such groups as Daughters of the Empire, Local Council of Women, home and school clubs, school teachers' associations, and service clubs. Some two years ago we extended this service to mothers' meetings which are held every week, at which one of our nurses gives a short address. These talks are made interesting by the use of slides, posters, or film strips.

Among our other duties the health officer must visit each school in his community at least once each year. At this visit we have tried to give a message on health to the pupils, also to encourage the organization in the rooms of the Junior Red Cross. This has resulted in the pupils becoming more interested in their own health and has, I feel, made a considerable difference in their home surroundings.

Twice a year we arranged a meeting for our milk producers, bringing an outstanding speaker particularly familiar with some phase of milk production. The milk inspector also has encouraged the different dairies to have meetings of their own producers at which he has stressed the production of "safe milk". To show the result of these meetings, at the present time every milk producer supplying our city with milk has either been accepted or at least has applied for enrolment on the Accredited Herd or the Supervised Herd Plan, so that within a very short time all milk sent into St. Catharines for distribution will come from herds free of tuberculosis.

NEWSPAPER PUBLICITY

Many years ago we found that the local newspaper was keen to publish articles on health, for which generous space has been given. It was found that short articles appeared to be the best for this purpose. Each article was written so that a child of twelve could understand it. The regular meetings of the Board of Health are reported in the press, through the attendance of a reporter, and in this way excellent publicity is given to our monthly reports. The annual report of the Department also is always well reviewed, being given prominence in the newspaper. Knowing that our reports are to be published, we have learned to prepare them so that they will be of interest to the average newspaper reader. We must give the press much credit for the success which we have achieved in our efforts in public health education, as our toxoid campaign would not have been nearly so successful without the newspaper publicity and the support given us in excellent editorials.

BULLETINS

While a bulletin is an excellent way of reaching the public, we have found the cost of these excessive for a small health department. We have commenced, however, to publish our annual report in printed form; in this regard it is rather interesting to find that the cost is not much greater than for a mimeographed one. Our report contains information on health, and we try to make it attractive by using illustrations. Every organization in the city which helps our Department in any way receives a copy.

PAMPHLETS

So many excellent pamphlets are now available from the Department of Health for Ontario that we are able to get enough of these for almost any occasion. We also receive pamphlets from the Canadian Tuberculosis Association, life insurance companies, milk councils, the Red Cross Society, and many other organizations. A list of these is published by the Division of Public Health Education of the Provincial Department of Health. We keep these pamphlets available at our different exhibits, in the clinic rooms, and at the infant hygiene clinics. When these are distributed from our Department we have them stamped with our name. Perhaps the most useful booklets that we use are "The Baby" and "The Health Almanac", supplied by the Department of Health for Ontario, and "The Canadian Mother's Book", received from the Department of Pensions and National Health.

MOTION PICTURES

Whenever possible at public gatherings we rely on motion pictures because we realize that people take in more with the eye than with the ear. The library of the Motion Picture Bureau at Toronto is most complete in films of the 28 mm. size which may be used in any room. We are fortunate in our city in having available projectors, but those not so fortunate may rent equipment at very moderate cost through the same bureau. From time to time we have been able to have the local theatres present films on health, and in this way we reach a very large audience. Whenever a film such as "Damaged Lives", on social diseases, has been shown, we have prepared the way by newspaper publicity which has, I believe, helped the attendance.

Film Strips—About a year ago we were able to purchase a Delineascope for which there are many film strips available on subjects related to health. The strip is placed end to end in the machine and runs continuously. It always attracts attention, with the great advantage that it needs no operator and will run as long as desired.

EXHIBITS

One of the most interesting ways to teach health education is by exhibits. An excellent selection of posters on practically any health subject may be obtained from the Division of Public Health Education of the Ontario Department of Health. Many of our posters, however, are made locally a

very small cost, using cuts from magazines, etc., and having the lettering put on. We have one complete toxoid exhibit in which home-made posters are used entirely.

The interest shown in a small poster exhibit at a local fair opened our eyes to the possibilities of exhibits and created so much interest that it was decided to have a more or less permanent exhibit ready at all times for use in any vacant store window. If a background panel is made, it is very easy to complete it with posters suitable for the particular need.

Use of Store Windows—The use of vacant store windows for displaying posters and exhibits was a happy suggestion. To attract attention some mechanical device, such as the Delineascope or flasher, was always used.

Smallpox vaccination and diphtheria immunization exhibit using the "Big Bad Wolf" motif. The animal heads were borrowed from furriers.

Owners readily allow the use of windows of such stores, for the experience has been that stores which have been used have been rented quickly. The window is kept attractive and clean, and a "For Rent" sign is prominently displayed. The ordinary window will allow the showing of six to eight full size posters, but if the floor is used many more may be added.

Sometimes it is possible to arrange with a merchant to accommodate a special exhibit in his window. The necessity of very careful supervision of such displays in occupied stores is evident, for the merchant may introduce some commercial article in the exhibit which may not be in keeping with our teaching.

Posters in Schools—Because of the interest shown by the pupils in our posters, we supplied one for every room in the public and the separate schools, and since that time a rotating service has been provided, enough posters being sent to a school at one time to furnish one poster for each room. The principal

is asked to make sure that the posters are changed in the rooms every Friday and the teacher is instructed to draw to the attention of the pupils the message of the new poster. A record at the Health Department shows the date and number of posters going out, so that it is possible to give a complete change as often as necessary, depending on the number of rooms in the school. As our largest school has sixteen rooms, one change of posters suffices for four months; but in our smaller schools of four rooms it is necessary to make the change every month. The posters are of every type: safety on the street, general health, milk, fruit, dental health, etc. Most of these have been obtained without cost from various organizations and commercial firms interested in health education.

"Eat well balanced meals; the vitamins will take care of themselves."
Exhibit prepared for Hospital Day, 1933.

We always have an exhibit at school or community fairs. At these we distribute thousands of pieces of health literature, as we find that people like to take things home with them. At our clinic rooms a large bulletin board is always kept attractive by posters, and considerable free literature is available. A rotating service from the Ontario Department of Health provides posters for use in all clinic rooms.

HOSPITAL DAY

For many years our Department has co-operated with the Hospital in putting on an interesting exhibit for Hospital Day, each year a different subject being chosen. This year we stressed food, our exhibit showing trays with the foods containing each vitamin and also showing of what use these vitamins are in regard to health. Our main poster read: "Eat well balanced meals; the vitamins will take care of themselves".

HOME PUBLICITY

In order to reach the people in their homes and interest them in health, as soon as a birth of a baby is registered, or announced in the paper, we send a letter from the Department congratulating the mother. We ask her not only to make sure that the birth of the baby is registered, but that she insist on a birth certificate. The public health nurse follows up this letter with a home visit, leaving the interesting booklet, "The Baby". Three months later a letter is sent showing the advantages of vaccination against small-pox, and asking either that this be done by the family physician or that the baby be brought to our Department. When the baby is eight months old a letter is sent advising toxoid prevention for diphtheria, enclosing a pamphlet from the Department of Health for Ontario on this subject. This type of health education not only shows the mother that we are particularly interested in her baby, but also keeps us in close contact with the homes.

PARADES

Nowadays there are not the number of parades there used to be, but if allowed, we always have something of interest in every parade. One year our float was in the form of an engine marked "Train to No-Diphtheria Town". Another time we had all the children march who had received toxoid. Each child had a small flag or a banner telling about our prevention work on diphtheria. A decorated car led the parade. In another parade we had decorated trucks filled with children. Each truck had a banner on the side stressing some health subject.

BROADCASTING

One of the newest fields for health education is through the radio. Some few months ago, through the courtesy of the owner of our local station CKTB, we were given the opportunity of presenting a health talk once each week. We availed ourselves of this opportunity, so at 10.45 a.m. on Tuesdays the health officer gives a short talk on health. It is difficult, of course, to tell how large an audience we are reaching in this way, but we feel from the comments received that it is quite worth while. May I say that I find this type of work very interesting, but very exacting, as the script has to be prepared with infinite care. The Canadian Social Hygiene Council has prepared a series of talks which have been of great assistance to us.

SUMMARY

Health education of the public should be the most important duty of any health officer and should be part of every health programme.

Each member of the department of health staff should continually be on the lookout for new ideas, new types of posters, etc., which may be used for the purpose of educating the public.

On account of the time necessary for a proper exhibit, the health officer should always have a new one planned well in advance, so that when the opportunity presents itself little time is lost in preparation.

The Prevention of Tuberculosis through Travelling Clinics*

AUGUSTE LEBOEUF, M.D.

Clinician, Provincial Bureau of Health, Quebec

THE first county health units in the province were established in 1926 in the counties of Beauce and Lac St-Jean. Early in 1927, Dr. Alphonse Lessard, Director of the Provincial Bureau of Health, organized travelling clinics for the diagnosis of tuberculosis, with Dr. Guerard as diagnostician for the County of Beauce and Dr. Couillard and the writer in Lac St-Jean.

At the beginning we were somewhat uneasy, not knowing how the work would be received by the public, the medical profession and the clergy. After a trial of one and a half years, however, with the increasing popularity of the clinics and the assent of the medical profession which sent 4,048 cases to the clinics for making or confirming a diagnosis, the Provincial Bureau of Health decided to generalize, in each health unit, these travelling tuberculosis clinics.

In September, 1929, I began as a full-time diagnostician. In 1930 Dr. Fontaine was assigned to the eastern part of the province from the County of L'Islet to the sea. Later in the same year two other diagnosticians, Doctors A. Jeannotte and Lasalle Laberge, were appointed to survey the northern and southern districts of Montreal. In 1932 Dr. Jeannotte was appointed to the Trois-Rivières District. Dr. Guerard has been diagnostician for the health unit of Beauce since 1927. All these clinicians have had years of experience in the diagnosis of pulmonary tuberculosis and have specialized either in the sanatoria of our country or in those of France and Switzerland. We have thus five full-time diagnosticians and one part time diagnostician, Dr. Guerard.

Organization of the Clinic

As surveys are made in co-operation with the health units, the diagnostician must prepare his annual programme in advance so that the personnel of the health units will be able to organize his clinics at convenient dates.

The medical officer of health, assisted by the public health nurse, chooses a place where the clinic will be held, visits the local physicians living in the parish and invites them to attend the clinic with their patients suffering from tuberculosis and suspicious cases which they may have seen, so as to confirm or establish a diagnosis. The medical officer also calls on the curé or other minister, asking that mention be made of the clinic on the last Sunday previous to the date assigned for it. The local press is always helpful in furthering the propaganda. The public health nurse, in close contact with the population,

Presented at the Twenty-Third Annual Meeting of the Canadian Public Health Association, Montreal, June, 1934 (Joint Session with the Canadian Tuberculosis Association).

brings to the clinic suspicious cases of tuberculosis and children in contact with active cases. Through her school examinations and her canvass from house to house, she knows of practically every patient who may suffer from tuberculosis. The mortality statistics also are used very widely to trace the contacts.

Routine of the Clinic

Clinics are held in every parish of our respective territory and, as far as possible, there is one clinic in each place each year. One, two or three days are devoted to each place, according to the size. In small territories the clinicians hold two clinics at the same place during the year.

People are examined in the order of their appearance. The public health nurse writes on a special card a short personal history regarding tuberculosis and introduces the patient to the clinician.

With bare shoulders and chest, each patient is given the usual physical examination; when necessary, the diagnostician uses his portable X-ray apparatus for fluoroscopic examination or for roentgenograms. When the patient expectorates, a sample of sputum is examined. Forty per cent of the patients had a Koch positive sputum at the first laboratory examination and 50 per cent of roentgenograms showed positive findings.

Each person examined receives Publication No. 31 of the Department of Pensions and National Health of Ottawa, "What everybody should know about tuberculosis". To each patient is also given the bulletin of the Canadian Tuberculosis Association, "How to live out-of-doors". To children we give "Le petit catechisme de la tuberculose" of the Anti-Tuberculosis League of Montreal.

Results of the Clinics

The total number of persons examined at the clinics to date is 70,468. Of these 6,797 were positive cases. The total number of clinic days is 2,293. We have a total number of 2,287 roentgenograms and 17,785 persons have been examined with the fluoroscope. The territory organized into health units has a population of 986,224. The average number of persons examined per day is 30.

One may think that the proportion of positive cases, compared with the number of persons examined, is too large, but many patients have been examined more than once, at subsequent clinics, thus increasing the total number of positive cases. On the other hand, the proportion of positive cases to the number of persons examined is about fifty per cent lower than the proportion found in Tennessee in a four-year survey made by three diagnosticians.*

*Report of Dr. E. L. Bishop, Commissioner of Health of the State of Tennessee, 1932.

As stated above, more than 4,000 persons were sent to the clinics by the attending physicians. Through their Sunday notices, the curés and other ministers have sent over 23,000 persons. It must be said that the clergy favour very strongly this work for recognition of pulmonary tuberculosis. From our religious orders, seminaries, convents and monasteries, more than 5,900 subjects have been examined at our clinics.

Findings at the Clinics

Through these clinics, we have found that pulmonary tuberculosis is prevalent at every age period of life, but that the highest frequency occurs between years 20 and 24. From 15 to 34 years of age we have found 4,185 tuberculous patients, compared with 2,627 in all the other age periods of life. One other notable finding is that the attack rate is twice as great in females as in males: we found 4,510 female and 2,283 male patients. These figures are corroborated by the mortality statistics of the same territorial divisions.

Tuberculosis is more prevalent in the eastern and north-eastern parts of the province than in the western part and in the Montreal district. The diagnosticians of the latter divisions have found a smaller number of positive cases than those of the former territories. In 1931 the mortality rate of Pontiac County was 23.5 (western part), against 230.2 in Magdalen Islands (eastern part). A rational explanation might be the more favourable economic status of the western part of the province and the fact that the eastern part has been colonized by old settlers with greater possibilities of familial contacts.

Follow-up of Positive Cases

What becomes of the positive cases found at the clinics? A large number, from 30 to 35 per cent, are hospitalized, but unfortunately the number of available beds in hospitals and sanatoria (1,900) is still insufficient. A certain number, the more advanced cases, die during the year. In my territory, death has claimed 10 per cent of the tuberculous patients (350 deaths in four years).

After a few months spent in the sanatoria, many patients go back home to follow the rest cure. Some of them, following the advice contained in the publication of the Canadian Tuberculosis Association, "How to live out-of-doors", had porches erected at home so as to follow as closely as possible the regime of the sanatorium and a notable proportion succeeded in improving their health (416 in four years) and, in time, even being completely cured (115). Others, for specific reasons, do not wish to be or cannot be hospitalized. These are attended by the family physician, to whom we give a complete report of the examination made at the clinic and of the findings made through the X-ray or the Laboratory.

The follow-up of these patients is systematic. Each month the public health nurse visits them, insists on prophylactic measures, devises means of preventing the contamination of young children, strengthens the morale of

the patients through her advice, and teaches them the proper way of living with impaired health.

Decrease of Mortality

What has been the result of the whole survey on the mortality rate from tuberculosis? In 1926, in the province of Quebec, the mortalty rate was 125.2 per 100,000 population while in 1932 it had decreased to 101.9. Only half the rural population of the province has the privilege and the services of health units and only this half-portion could benefit by the travelling clinics for the diagnosis of tuberculosis. (Our cities and town opened dispensaries many years ago.) Had the whole rural population been provided with this system of clinics, our mortality rate might be approximately 80 per 100,000 population, instead of being a little higher than 100. My own territorial division of the province has a population of 252,501; in 1928 the mortality rate from tuberculosis was 137.9 per 100,000 population, scaling down from year to year to 89.7 in 1933, or a decrease of 35 per cent in five years.

SUMMARY

The main result of these clinics for the detection of tuberculosis is the education of our population. By and by, the necessity for an early diagnosis in relation to tuberculosis will be realized and the means of preventing contamination from an active case of tuberculosis will be understood, thus decreasing our morbidity.

Finally, having seen recoveries among those who were expected to die from tuberculosis, people will realize that tuberculosis is a curable disease when an early diagnosis is made and when a patient summons his reserve of courage and patience, accompanied by the factor of time.

Third Annual Christmas Meeting
LABORATORY SECTION
Royal York Hotel, Toronto
DECEMBER 20th and 21st, 1934
Programme on page 550

EDITORIAL SECTION

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AN ADVANCE IN THE PROPHYLAXIS OF TYPHOID

THE well known Rawlings strain of *B. typhosus*, widely used in the preparation of typhoid vaccine, was isolated in 1900 from the spleen of a fatal case of typhoid fever. This strain was adopted for the British Army vaccine after prolonged and detailed investigation by the Anti-typhoid Committee of the relative immunizing value of different strains of *B. typhosus*. Leishman and his associates, working for this committee, had found "that the protective substances elaborated in response to inoculations of a non-virulent vaccine are highly active *in vitro* against a freshly isolated and virulent strain of Bacillus typhosus". The choice of the Rawlings strain was determined by its "low virulence" and its suitability for *in vitro* tests. In recent years it has become obvious that during prolonged cultivation on laboratory media the Rawlings strain has changed, assuming predominantly the form, in bacteriological language, of a "*rough*" variant. Since it is now known that rough variants of an organism are deficient in immunizing value, doubts have been expressed concerning the efficacy of vaccines from the old Rawlings strain. Grinnell[1] investigated this and his significant results led Perry and his associates[2, 3, 4] at the Royal Army Medical College to pursue the matter further, and as a result *B. typhosus* (Rawlings) was temporarily not employed in the preparation of vaccine.

Perry, by mouse passage of the old Rawlings strain, was able to recover a "smooth" form which, in addition to being smooth, was also highly virulent. Further, he and his associates have shown that mice vaccinated with the smooth virulent form have a much greater degree of protection than mice vaccinated with old Rawlings strain. They have concluded "that it appears justifiable to assume that vaccines prepared from highly virulent cultures will be as superior in human prophylaxis as they have been in the case of laboratory animals". Felix and Pitt[5] have shown further that certain smooth strains give a greater protection than others, and that the degree of protection is related to the virulence, the ability to invade the blood stream, of the strain used in the vaccine. The work of Perry and Felix has thus made possible a laboratory test, *in vivo*, of the protective value in mice of a vaccine; in other words, a measure of its ability to produce resistance to invasion of the blood stream by *B. typhosus*.

The value of anti-typhoid vaccination in the past has been unquestionable; whether the fullest possible value has been obtained for the inoculations is another matter. The way would now seem to be clear for the maximum possible protection of man against enteric fever. The virulence of the organism used in vaccine production has taken on renewed significance, and the maintenance of virulence and its importance in vaccine prophylaxis and in serum therapy are worthy of further exploration.

AN ANNUAL REVIEW OF NEW HEALTH LEGISLATION

FEW of those interested in the promotion of public health in Canada have the opportunity of learning of new health legislation as passed by the various Provincial Legislatures. To any one worker in the field of public health, much of the legislation is only of general interest. From time to time, however, legislation of very special interest in the field of endeavour in which he is engaged may be enacted in a province. The steps taken by that province may be of the greatest value in placing in concrete form the ideas which have already been prominent in his mind as avenues for the desired improvement.

Of outstanding interest in the review published in this issue is the new Public Health Act of Manitoba. It is entirely permissive, giving to the Minister and the Department of Health authority to enact regulations covering the entire field of public health. The scope of these regulations is defined in such terms that the Department has the widest possible powers. The Act replaces one of 398 sections occupying 125 pages, and is contained in 38 sections occupying only 14 pages.

In Alberta the efforts of past years have resulted in a thorough system of milk control by the municipalities and the Provincial Department of Health. The publication of the collected regulations may well serve as a guide to all who are interested in the improvement of municipal milk supplies.

In Saskatchewan the establishment of a Health Services Board is of particular interest, marking as it does a further step in the efforts to meet the needs for adequate health services, particularly in relief areas.

In Ontario legislation was passed permitting of the formation of full-time health units and presenting in detail the duties and powers of the local board and the medical officer of health in such service. Legislation of particular interest to the medical officer of health was the additional protection afforded him by a clause providing that no action, prosecution or other proceeding shall be brought or instituted against him for an act done in pursuance of his public duty or authority, without the consent of the Minister of Health.

These are but a few of the matters presented in the first review of recent health legislation.

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[1]F. B. Grinnell, *J. Exp. Med.*, 56: 907, 1932. [2, 3, 4]H. M. Perry, H. T. Findlay, and H. J. Bensted, *J. Roy. Army Med. Corps*, April, and August, 1933, and March, 1934. [5]A. Felix and R. M. Pitt, *Lancet* II: 186, 1934.

LABORATORY SECTION

THIRD ANNUAL CHRISTMAS MEETING

ROYAL YORK HOTEL, TORONTO

DECEMBER 20 and 21, 1934

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PROGRAMME

THURSDAY, DECEMBER 20th—2.30 p.m.

1. Chairman's Address—Dr. M. H. Brown, Connaught Laboratories and School of Hygiene, University of Toronto.
2. A Milk-borne Epidemic of Paratyphoid Fever probably transmitted by Flies—Dr. A. R. Younie, Department of Public Health, St. Catharines, Ontario.
3. The Advisability of Standardization of Vitamin Content of Certain Foods—Dr. E. W. McHenry, Connaught Laboratories and School of Hygiene, University of Toronto.
4. The Problem of Fish as a Food—Dr. A. G. Huntsman, Professor of Marine Biology, University of Toronto.
5. The Practical Use of Dried Complement in Serological Tests—Dr. A. L. McNabb, Director, Division of Laboratories, Department of Health, Ontario.
6. Serological Identification of B. Paratyphosus Beta—Dr. James Craigie, Connaught Laboratories and School of Hygiene, University of Toronto.
7. Report of the Committee on the Publication of Papers—Dr. A. J. Slack, Director, Institute of Public Health, London, Ontario.
8. Report of the Committee on Publication of the Directory of Laboratory Personnel—Dr. J. H. Orr, Department of Bacteriology, Queen's University, Kingston, Ont.
9. Appointment of Committee on Nominations for Section Officers, and Appointment of Committee on Resolutions.

FRIDAY, DECEMBER 21st

Morning Session, 9.30 a.m.

1. The Relative Efficiency of Various Methods of Sterilization of Dairy Utensils in the Destruction of Bacterium Coli—Dr. A. Grant Lochhead and Mr. C. K. Johns, M.Sc., Central Experimental Farm, Ottawa.
2. Report of the General Committee on Standard Methods—Mr. N. J. Howard, Director, Filtration Plant Laboratory, Department of Public Health, Toronto.

3. Bacteriological Findings in Investigations of Undulant Fever in Canada—Dr. Redvers Thompson, Department of Bacteriology, Macdonald College, University of Montreal.

4. Further Studies on the Antigenicity of Modified Diphtheria Toxoids—Dr. P. J. Moloney and Mr. M. D. Orr, B.A., Connaught Laboratories and School of Hygiene, University of Toronto.

5. Tuberculin, Johnin and Mallein, derived from Non-protein Media—Dr. E. A. Watson, Animal Diseases Research Institute, Hull, Quebec.

6. Report of the Committee on Diagnostic Outfits—Dr. W. B. McClure, Division of Laboratories, Department of Health, Ontario.

7. Comparative Bacteriological Studies of Waters from Various Sources—Dr. A. L. McNabb, Director, Division of Laboratories, Department of Health, Ontario.

8. Diphtheria Virulence Test—Dr. D. T. Fraser and Dr. A. L. McNabb, Toronto.

Luncheon Session, 1 p.m.

Speaker—Dr. J. G. FitzGerald, Dean of Faculty of Medicine and Director of the School of Hygiene and Connaught Laboratories, University of Toronto.

Report of the Committee on Nominations.

Report of the Committee on Resolutions.

Afternoon Session, 2.30 p.m.

1. Programme of demonstrations; convenor, Dr. G. D. W. Cameron, Connaught Laboratories, University of Toronto.

2. Amoebic Dysentery—Dr. G. W. McCoy, Director, National Institute of Health, Washington, D.C.

DEMONSTRATIONS

AT the Friday afternoon session the series of demonstrations will be given from 2.30 to 3.15. It is hoped that this portion of the programme will, from year to year, be of increasing value. The committee are planning to provide demonstrations relating to such subjects as bacteriological dissociation, new staining methods, and improvement in rapid typing of pneumococci, together with demonstrations of elementary bodies of vaccinia, and culture methods in tuberculosis. Of special interest will be an exhibit of pathological specimens from cases of amoebic dysentery, together with a demonstration of the methods employed in microscopical faecal examinations, presented by Dr. P. A. T. Sneath, Connaught Laboratories, University of Toronto. Exhibits of equipment and laboratory supplies will be made by several of the prominent laboratory supply houses.

A cordial invitation is extended by the Laboratory Section to all members of the Association, and medical officers of health will find a number of papers of interest. A meeting of the Council of the Section will be held on Thursday evening for the discussion of plans of the Section and the publication of reports presented at the meeting.

Appointment of J. Albert Faulkner, B.A., M.D., C.M., as Minister of Health, Ontario

THE Honourable J. Albert Faulkner, B.A., M.D., C.M., who assumed the portfolio of Health in the Provincial Cabinet last July, on the invitation of the newly-elected Prime Minister of the Province of Ontario, was born at Stirling, Ontario, on October 7, 1877. He obtained his early education in the public and high schools at Stirling and received his Bachelor of Arts degree from McMaster University in 1900 and his M.D., C.M. from McGill University in 1904. During 1904 and 1905 he served as interne in the Royal Victoria Hospital, Montreal, and in 1905 commenced the general practice of medicine at Foxboro, Ontario. There he remained until 1918, when he established practice in Belleville, specializing in surgery. In the following year he took a post-graduate course in surgery in Chicago and has been an outstanding surgeon over a wide area in central Ontario from that time.

Dr. Faulkner has occupied many important public positions. He is a past president of the Hastings and Prince Edward Medical Society, past president of the Belleville Medical Society, a member of the Academy of Medicine, Toronto, and of the Ontario and Canadian Medical Associations. He has been physician to the County House of Refuge for the past twenty years; divisional surgeon for the Canadian National Railways for the past five years, and medical officer of health for the township of Thurlow, an appointment which he still holds, thereby bringing the local and provincial administrations into close relationship.

Dr. Faulkner is a lover of nature. His recreations are golf and hunting. He is keenly interested in the physical well-being and social happiness of his fellow citizens. No road was ever too long, no night too dark for a trip to relieve sorrow or suffering. He brings to the office which he now holds an intense humanitarianism, broad medical experience, and a keen interest in public health in all its varied relationships.

LABORATORY SECTION

The Paul-Bunnell Agglutination Test for Infectious Mononucleosis

With Report of Four Cases

R. M. SHAW, M.D., and J. W. MACGREGOR, M.D.

Provincial Laboratory, University of Alberta, Edmonton, Alberta

A SHORT time ago our attention was drawn to an agglutination test for infectious mononucleosis, proposed by Paul and Bunnell[1], and Bunnell[2]. In a small series of cases their results were so striking that it was their belief that the test was of definite value in the diagnosis of this disease. Particularly is it of interest in that it gives us another aid in differentiating infectious mononucleosis from the acute leukaemias and, from this point of view, is of value in prognosis.

It has been our fortune in the last few months to apply this test in four cases of infectious mononucleosis, and we feel that our results are worthy of presentation in order that the attention of others may be directed to the test, which, because of its simplicity, can be carried out readily in any serological laboratory.

The test has to do with the demonstration of the presence of substances known as heterophilic antibodies in the blood serum of individuals suffering from infectious mononucleosis. It seems advisable, before presenting our results, to summarize briefly the literature pertaining to the discovery of and later studies on heterophilic antigens and antibodies.

Forssman, in 1911, demonstrated that the organs of the guinea pig, and certain other animals, when introduced in the form of an emulsion into the rabbit, induced the development of antibodies which were lytic for sheep corpuscles, as well as reacting with the tissues used for their induction. These antibodies, which produced lysis of sheep red cells, have been termed heterogenetic or heterophilic antibodies (the latter term is perhaps preferable). The organ emulsions used for the production of these heterophilic antibodies are termed heterophilic antigens. As well as being endowed with hemolytic activity for sheep red cells, the antibodies are capable of causing agglutination and of being absorbed by sheep cells. It will be seen that heterophile antibodies, besides reacting with the antigen causing their induction, will also react with an antigen from an animal quite unrelated, notably sheep red cells.

These heterophile antigens have been found to be widely distributed throughout the animal kingdom. Animals can be divided into two groups: the guinea pig group, in which are included the horse, dog, cat, mouse, fowl and tortoise, the organs of which contain heterophile antigen; and the rabbit group, including man, the ox, sheep, goose, pigeon, eel, frog, pig and rat, the organs of which do not contain heterophile antigen. It may also be explained that, as a general rule, animals the organs of which contain heterophilic antigen do not show this antigen in their blood cells and *vice versa*.

Davidsohn [3, 4] and other workers have investigated blood serum from normal persons with a view to determining the normal content of antibodies agglutinating and hemolysing sheep red cells, or, in other words, of establishing the range of heterophilic antibodies in normal human serum. It is generally agreed that in

only a small percentage of normal persons does the blood serum agglutinate sheep cells in a dilution above 1 in 8.

Many of these findings were purely of academic interest until Davidsohn demonstrated that the blood serum of individuals suffering from horse serum sickness contained heterophilic antibodies in quantities definitely above the normal.

Fresh interest in the subject has been stimulated by the work of Paul and Bunnell, who, as stated, have shown, by means of an agglutination test, that heterophile antibodies are present in greatly increased amounts in the blood serum of individuals suffering from infectious mononucleosis, while they are not increased, or increased only very slightly, in other conditions so far studied, with the exception of horse serum sickness. These investigators made over 2,000 blood examinations, among which were some 1,600 Wasserman sera and 437 sera taken from patients suffering from 76 different clinical conditions, as well as the sera from 15 cases of infectious mononucleosis. In all their cases of infectious mononucleosis the agglutination titre reached, and usually exceeded, a dilution of 1:64 at some stage of the disease, whereas, in the large control series, with the exception of horse serum sickness, agglutination was never obtained in dilutions above 1:32. In horse serum sickness the highest titre was 1:64. They concluded that "cases presenting a suggestive clinical and blood picture, whose blood serum shows an agglutination for sheep cells, in a dilution of at least 1:64, can apparently safely be diagnosed as infectious mononucleosis".

Technique of Test

The technique used in our observations is that of Davidsohn and is quoted from Paul and Bunnell's article in the American Journal of Medical Sciences, vol. 183. p. 92:

"*Sheep Cell Agglutinins.* Sera, obtained as for a Wassermann test, were inactivated for 15 minutes at 55°C. Dilutions of inactivated sera, ranging from 1 to 4 to 1 to 32 (or higher if the heterophile antibody content was suspected to be present in unusual concentration), were set up in 0.5 cc. portions. To these 0.5 c.c. of a 2 per cent suspension of sheep cells were added, followed by 1 cc. of salt solution, thus bringing the total volume in each tube to 2 cc. The test tubes were shaken and placed in the water bath at 38°C. for 1 hour, left in the icebox overnight and on the following morning were read, after each tube had been inverted three times with its mouth covered by the finger tip.

"For the sake of conformity with previous work the readings have been recorded in terms of the original dilution of the 0.5 cc. of sera added to each tube. With the subsequent addition of 0.5 cc. of the suspension of sheep cells and 1 cc. of saline, the dilution of serum becomes much higher so that actually the tube designated 1 to 4 contains 0.12 cc. of serum in 2 cc. of cell suspension; that designated 1 to 8 contains 0.06 cc. of serum, in 2 cc. of suspension. Legends for recording the readings are given in the following terms:

xxx	firm disk.
xx	disk easily broken into large flakes.
x	fine agglutination.
±	barely perceptible, but definite agglutination.

NOTE—Tubes 100 mm. in length by 10 mm. in diameter are used in the tests.

"The sheep cells, which were obtained fresh each week, had been washed three times in saline and were allowed to stand in saline in the icebox for a period of 2 to 5 days before using."

SUMMARIES OF THE HISTORIES OF THREE OF OUR CASES

Case No. 1. D.L. Service of Dr. W. H. Scott, University Hospital, Edmonton Alta.

This patient was a young man of 28 years, who was admitted December 16, 1933, complaining of swollen, slightly painful glands in the neck.

TABLE I

BLOOD FINDINGS IN FOUR CASES OF INFECTIOUS MONONUCLEOSIS

	Date 1934	Agglutination Test — Dilution										W.B.C.	Differential				
		1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	1:1024	1:2048		Poly.	Lymph.	Trans.	Eos.	Baso.
Case I Mr. D. L.	Dec. 18	xx	xx	xx	xx	xx	x	x	x	x	–	14,800	38	58	4		
	Jan. 6	xx	xx	xx	xx	x	x	x	x	±	–						
	Aug. 2	x	–	–	–	–	–	–	–	–	–	5,950	53	38	7	2	
Case II Mr. N. W.	Apr. 7	xx	xx	x	x	–	–	–	–	–	–	8,600	28	70	2		
	" 10											16,500	22	78			
	" 14											13,200	23	76		1	
	" 18	xxx	xxx	xx	xx	x	x	–	–	–	–						
	May 2	xx	xx	xx	x	x	–	–	–	–	–	8,000	57	41	1	1	
	" 12	x	x	±	–	–	–	–	–	–	–	4,900	50	40	9	1	
	" 26	x	x	±	–	–	–	–	–	–	–	7,800	72	24	4		
Case III Mr. R. G.	Apr. 20											4,950	52	48			
	" 22											8,150	22	78			
	" 24	xx	xx	xx	xx	x	x	±	–	–	–	15,750	9	90			1
	" 28											19,150	6	94			
	May 5	xx	xx	x	x	x	–	–	–	–	–		32	60	6		2
	" 14	x	x	x	±	–	–	–	–	–	–	11,550	55	40	4	1	
	" 26	x	x	x	±	–	–	–	–	–	–	8,300	50	46	3	1	
Case IV Miss T.	June 15											16,050	23	73	3	1	
	" 16											15,700	20	78	2		
	" 18	xx	xx	x	x	x	x	±	–	–	–	21,600	27	70	3		
	" 21											10,100	25	73	2		
	" 25	xx	xx	x	x	x	–	–	–	–	–						
	" 29											8,900	32	67	1		

TABLE II

AGGLUTINATION TESTS AGAINST SHEEP CELLS USING SERA FROM INDIVIDUALS SUFFERING FROM DISEASES OTHER THAN INFECTIOUS MONONUCLEOSIS

	No. of cases	1:4	1:8	1:16	1:32	1:64	1:128	
Leukaemias (6 cases)	4	–	–	–	–	–	–	
Acute leukaemia (2 cases)	1	x	x	–	–	–	–	
Chronic leukaemia (4 cases)	1	x	x	x	–	–	–	
Inflammations, such as	25	–	–	–	–	–	–	
appendicitis, salpingitis,	10	x	–	–	–	–	–	
cholecystitis, bronchitis,	6	x	x	–	–	–	–	
osteomyelitis, etc.	2	x	x	x	–	–	–	
Tumors—benign and malignant	9	–	–	–	–	–	–	
Uterus, ovary, brain, skin,	2	x	–	–	–	–	–	
etc.	2	x	x	–	–	–	–	
Tuberculosis and syphilis	8	–	–	–	–	–	–	
	3	x	x	–	–	–	–	
Pregnancy, goitre, psychoses,	17	–	–	–	–	–	–	
epilepsy, trauma	2	x	–	–	–	–	–	
	1	x	x	–	–	–	–	
	1	x	x	x	–	–	–	
	2	x	x	x	x	–	–	(1 case of manic depressive—insanity) (1 " " child with crushed finger)
Miscellaneous group	31	–	–	–	–	–	–	
	6	x	–	–	–	–	–	
	1	x	x	–	–	–	–	
	2	x	x	x	–	–	–	
Total number of cases	136							

It will be noted that less than 2 per cent of these bloods give agglutination in dilutions above 1:16 and none go higher than 1:32.

His illness began three days previous to admission. Physical examination showed some redness of the throat and enlargement of posterior cervical and axillary glands.

Blood examination showed w.b.c. 14,800; polymorphs., 38 per cent; lymph., 58 per cent; end., 4 per cent. A diagnosis of infectious mononucleosis was made. The results of agglutination tests appear in Table I.

Case No. 2. N. W. Service of Dr. John W. Scott. University Hospital.

The patient, a male student 20 years of age, was admitted to the University Hospital April 6, 1934. A week prior to admission he suffered from pains in the joints, headache and sore throat. The temperature was 101.4°F. and the pulse 96. Physical examination was essentially negative. A few days later symptoms were aggravated and he was admitted to hospital with fever of 100°F. and enlarged anterior cervical lymph nodes. Differential blood count showed polymorphs. 28 per cent; lymph. 70 per cent; and trans. 2 per cent. On April 10th lymph nodes were enlarged in anterior and posterior triangles of the neck, axillae and inguinal regions. Spleen just palpable. A diagnosis of infectious mononucleosis was made.

Details of blood examinations are given in Table I.

Case No. 3. R. G. Service of Dr. John W. Scott.

This patient was a university student, male, 20 years of age, admitted to Hospital April 19, 1934, complaining of chills, sweating, and pain in the right axilla, of three days' duration. He noticed a swelling in the arm pit and consulted Dr. John W. Scott, on whose advice he entered the hospital. Examination on admission showed a temperature of 100.8°F. and pulse of 92. The axillary, inguinal and left submaxillary lymph nodes were enlarged and slightly tender on palpation. Blood examination showed 4950 w.b.c., with a differential count of 52 per cent polymorphs. and 48 per cent lymph. A diagnosis of infectious mononucleosis was made.

Further details of blood examinations are given in Table I.

Up to the present the cause of infectious mononucleosis has not been discovered and no satisfactory explanation has been offered for the increase of heterophilic antibodies in the blood serum of individuals suffering from this disease.

SUMMARY

Four cases of infectious mononucleosis, in which the agglutination test proposed recently by Paul and Bunnell has been employed, are presented.

A marked increase of the agglutinin titre for sheep cells was present in all four cases. During the acute stage the agglutinin titre for sheep cells reached 1:64 in each case, and in one case ranged as high as 1:1024.

In contrast to this, there are presented in Table II agglutination tests on the sera of 136 persons suffering from various diseases other than infectious mononucleosis. Among these are included two cases of acute leukaemia and four of chronic leukaemia. In none of these control cases did the agglutinin titre exceed 1:32 and in less than 2 per cent was there agglutination in this dilution.

ACKNOWLEDGMENT

We wish to thank Drs. Walter H. Scott and John W. Scott for permission to report the findings in these cases and for co-operation in obtaining laboratory material for examination.

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[1]Paul, J. R., and Bunnell, W. W. The Presence of Heterophile Antibodies in Infectious Mononucleosis. Am. J. Med. Sci., *183*: 90, 1932.

[2]Bunnell, W. W. A Diagnostic Test for Infectious Mononucleosis. Am. J. Med. Sci., *186*: 346, 1933.

[3]Davidsohn, I. Heterophile Antibodies in Serum Sickness. J. Immunol., *16*: 259, 1929.

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NEWS FROM THE FIELD

International Congress on Industrial Hygiene

THE Seventh International Congress on Industrial Accidents and Diseases will take place in Brussels in July, 1935. The programme includes consideration of the delayed effects of injuries to the cranium; traumatisms of the hands and fingers; the prevention and control of industrial dusts; initial and periodic physical examination of workers in dangerous dusts; the effect of gases in coal mines; the objective manifestations of pain; and pathologic conditions due to electricity. Experts from Great Britain, the United States and Europe will discuss these subjects in detail.

The Congress offers a prize of one thousand Swiss francs as an award to the best (unpublished) original work on the subject, "The Importance of Previous Physical Condition in Estimating the Sequelae of an Industrial Accident". Physicians in all countries are permitted to take part. Manuscripts must be in by December 31, 1934. The award will be made at the time of the meeting of the Seventh International Congress. Correspondence regarding the programme or the preparation of the manuscript may be addressed direct to Dr. L. Dejardin, General Secretary of the Seventh International Congress on Industrial Accidents and Diseases, 23, rue du Commerce, Brussels, Belgium, or to Dr. J. G. Cunningham, Ontario Department of Health, Toronto.

Visit of Dame Janet Campbell

A VISIT of special interest to public health workers throughout Canada is being made by Dame Janet Campbell, D.B.E., M.D., under the auspices of the Canadian Council on Child and Family Welfare. Dame Janet, who has just retired as Senior Medical Officer for Maternal and Child Welfare of the British Ministry of Health, is internationally known for her studies of maternal and child hygiene.

British Columbia

THE urgent need for additional sanatorium accommodation to meet the needs of Vancouver and district is stressed by the Greater Vancouver Health League. Attention is drawn to the reporting of 778 cases during 1933, making a total of 1,367 known cases in the city during 1933, with 200 deaths registered from this cause.

Saskatchewan

THE seventh annual convention of the Saskatchewan Health Officials' Association was held in the Hotel Saskatchewan, Regina, on Wednesday, October 10, 1934, with more than seventy delegates in attendance. Three outstanding addresses were given by Dr. R. G. Ferguson, president of the Association, the Hon. Dr. J. M. Uhrich, Minister of Public Health, and Dr. R. O. Davison, recently appointed Deputy Minister of Public Health. The remainder of the programme was devoted to round-table conferences under the chairmanship of health authorities of the province who were well informed on the various subjects under discussion. A full report of the proceedings was taken and it is proposed to forward this in booklet form to the members in due course. A feature of the meeting was the luncheon address given by the Hon. Dr. J. M. Uhrich, whose talk was an inspiration to the health officials gathered from all parts of the province.

Dr. T. A. Patrick of Yorkton was unanimously elected president of the Association for the ensuing year. Dr. W. H. Orme, of Saskatoon, was named vice-president, and Mr. R. H. Murray, C.E., of Regina, was re-elected secretary-treasurer.

Ontario

ANNOUNCEMENT has been made by the Honourable Dr. J. A. Faulkner, Minister of Health, that in future all appointments to the

Ontario Hospitals Service will be by examination. This announcement has been received with great satisfaction by all interested in the continued improvement of the mental hospital services.

The Ontario Hospital at Orillia will be enlarged to accommodate approximately 1,000 additional patients. At present it accommodates 834 persons.

Quebec

THE many friends of Miss Bertha Harmer, formerly director of the School for Graduate Nurses, McGill University, have learned with regret that she has been forced to resign this position, owing to ill health.

Nova Scotia

A SEVERE outbreak of measles occurred in Glace Bay during the early part of November. It is estimated that approximately 1,000 cases occurred in the population of 20,000. Two deaths have been reported.

Dr. Gordon McCurdy has now assumed his duties as lecturer in bacteriology at Dalhousie University following post-graduate work in the University of Glasgow.

Prince Edward Island

IN Prince Edward Island before the rural schools closed for the summer holidays a smallpox vaccination campaign was conducted by the Department of Health. Five years ago a similar campaign was undertaken by the Red Cross Society but since then the percentage of unvaccinated pupils had gradually increased to 55 per cent. In May and June 416 rural schools were visited by the public health nurses, chief health officer and local physicians and 4,911 school and preschool children vaccinated, thereby reducing the unvaccinated rural school population to about 28 per cent. Although the law provides for compulsory vaccination, this has not been strictly adhered to except in the city of Charlottetown and the town of Summerside.

BOOKS AND REPORTS

Mental Hygiene and the Public Health Nurse. *By V. May MacDonald, Reg. N. Published by the J. B. Lippincott Company, 525 Confederation Building, Montreal.* 1934. Xvi+72 *pages. Price* $1.00.

Preventive effort has a very definite place in the field of mental disorder and, in Miss MacDonald's words, "the public health nurse cannot ignore the opportunity that now lies before her, to assist in the promotion of mental hygiene and in the detection and prevention of mental disease". It is important to-day that every public health nurse should have some knowledge of psychiatry and the fundamentals of psychology. Miss MacDonald's book will therefore be found extremely useful in presenting a brief review and offering practical suggestions in the field of mental hygiene.

The book is divided into two sections. The first of these, "The Public Health Nurse and Mental Disorders", presents briefly those facts essential to the public health nurse in this field of work and indicates how incipient cases may be discovered. The second section, "The Public Health Nurse and Mental Health", includes a concise summary of important facts in the mental hygiene of infancy and childhood. The preventable forms of mental disease are touched on and a short account given of mental defect. The concluding chapter appropriately deals with opportunities for education of the public in mental hygiene.

The material is clearly presented and is well suited to its purpose of briefly reviewing this field of health effort for the public health nurse. It embodies many suggestions which will

be useful in broadening her vision of her task. Social workers also, among others, will find this volume exceedingly interesting and illuminating.

A. H. S.

Clinical Miscellany. *By members of the staff of the Mary Imogene Bassett Hospital, Cooperstown, New York. Contributors: Floyd J. Atwell, C. Lee Buxton, Francis F. Harrison, M. A. McIver, C. C. McCoy, G. M. Mackenzie, M. F. Murray, R. M. Pike, J. H. Powers, T. J. Abernethy. Volume I,* 1934. *Published by Charles C. Thomas, 220 East Monroe Street, Springfield, Ill.* 206 *pages. Price,* $3.00.

This volume is a collection of selected, rare clinical cases, each demonstrating rather forcibly certain clinical truths. Interpretative comments are added. The case histories are presented clearly, completely, and concisely. The clinical material has a wide scope. Among the twenty-two different subjects for which clinical cases are presented a few may be mentioned. For those interested in the communicable diseases, there are two cases of chronic meningococcemia, a chronic glanders-like infection of the face; and a scarlatiniform eruption followed by disquanation associated with staphylococcus aureus bacteremia.

For surgical teaching, no better material could be found than a case of tuberculosis of the spine with psoas abscess pointing at the umbilicus; three cases of hyperthyroidism in which serious complications increased the surgical hazard; and a case showing pancreatic asthenia, acute and chronic pancreatitis and cholelithiasis. For the medical clinician are presented eosinophilia with splenomegaly; agranulocytosis; spontaneous subarachnoid haemorrhage in a boy of eleven; three cases of botulism treated with antitoxin; sulphemoglobinemia, and others. The volume closes with a discussion of the preoperative treatment of prostatic obstruction, with two case studies.

Clinical Miscellany is a mine of clinical information and should be of special value to medical and surgical clinical teachers and students. The illustrations are numerous and many are coloured.

K. F. B.

The History and Epidemiology of Syphilis. *By Wm. Allen Pusey, A.M., M.D., LL.D., Professor of Dermatology Emeritus, University of Illinois. Published by Charles C. Thomas,* 220 *East Monroe Street, Springfield, Illinois,* 1933. 113 *pages. Price,* $2.00 *postpaid.*

This volume is comprised of three lectures delivered under the Adolph Gehrmann Endowment at the University of Illinois, College of Medicine, Chicago, in March, 1933. Offered under three titles, *The Beginning of Syphilis, The Development of Our Knowledge of Syphilis,* and *The Epidemiology of Syphilis,* the lectures present a brief review of the historical and epidemiological knowledge of syphilis in delightfully readable form.

The early historical material is written in very lucid style and the biographical sketches are extremely well done. Numerous excellent illustrations add much to the general interest. The section on epidemiology deserves special comment. In very small space the author reviews concisely the four important factors in the epidemiology of this social plague: the reservoir of infection, the infecting organism, the susceptible host, and the means of transmission. Sanitary measures in prophylaxis and control, and social aspects of the problem of syphilis are briefly discussed.

From no other one source can one obtain such a satisfactory statement of the known facts about syphilis. Its literary charm is an additional recommendation to students of social and medical problems. The important place which syphilis occupies as a social and medical problem in our civilization is ample justification for writing this volume and an excellent reason for reading it.

A. H. S.

The 1933 Year Book of General Medicine. *Edited by George Dick, M.D., Lawrason Brown, M.D., George R. Minot, M.D., S.D., William B. Castle, M.D., William D. Stroud, M.D., and George B. Eusterman, M.D. Published by The Year Book Publishers, Inc., 304 South Dearborn Street, Chicago,* 1933. 831 *pages. Price,* $3.00.

This is one of the ten Practical Medical Year Books, which now are in their thirty-third year. These volumes are designed to present annually in their particular sphere a review of the literature and thus provide a résumé of the important advances made during the period.

Five departments present the newer knowledge in infectious diseases, diseases of the chest, diseases of the blood, blood-forming organs and kidneys, diseases of the heart and blood vessels, and diseases of the digestive system and metabolisms. The departments are edited by American physicians, leaders in the respective fields. The author index and detailed subject index are a valuable guide to the reference reader. The difficult task of presenting the newer facts and figures in a readable fashion is accomplished in free and pleasing style and the work is a tribute to the authors.

The 1933 Year Book of General Medicine will prove valuable to medical men in practice, in research and in public health. A.H.S.

BOOKS RECEIVED

Amebiasis and Amebic Dysentery. By Charles F. Craig, M.D., M.A., F.A.C.P. Published by Charles C. Thomas, 220 East Monroe Street, Springfield, Ill., 1934. VIII+315 pages. Price, $5.00

Papers of Charles V. Chapin, M.D. A review of public health realities. Published by the Commonwealth Fund, 41 East Fifty-seventh Street, New York, N.Y., 1934. 268 pages. Price, $1.50.

ANNUAL CHRISTMAS SEAL SALE

CANADIAN TUBERCULOSIS ASSOCIATION

PREPARATIONS are complete for the annual Christmas Seal campaign. Last year's campaign was featured by a halt in falling off in revenue noted since the onset of the depression. The money raised was spent by local committees except 10 per cent to cover the cost of materials used, as supplied by the Canadian Tuberculosis Association. This year there is noted an increase in the quantities of supplies used by committees and several new committees are in the field. This, together with the improvement in economic conditions, would seem to indicate better returns from the year's campaign.

The funds raised filled a great need in the campaign of prevention. They were used mainly in educational work and to subsidize clinic and nursing services, X-ray equipment necessary in diagnosis, and health camps for children. The value of these and other preventive measures is shown in the further reduction in the death rate from tuberculosis to 64.9 per 100,000, the lowest rate recorded for the Dominion.

"CHRISTMAS SEALS COST LITTLE, THEY DO MUCH"

CURRENT HEALTH LITERATURE

These brief abstracts are intended to direct attention to some articles in various journals which have been published during the preceding month. The Secretary of the Editorial Board is pleased to mail any of the journals referred to so that the abstracted article may be read in its entirety. No charge is made for this service. Prompt return (after three days) is requested in order that the journals may be available to other readers.

Solution of the Streptococcus Carrier Problem

This report deals with the surgical treatment of carriers of *Streptococcus epidemicus* among the employees of a large dairy industry. In the examination of 1,000 employees during a period of three years, 50 individuals were demonstrated to be harbouring *S. epidemicus*. Of these, 34 submitted to tonsillectomy and 26 were found negative after convalescence and have remained so. The entire group were cleared up, but in the other cases further treatment, including the removal of tonsillar tags and silver nitrate treatment of lymphoid tissue, was required. The earlier arrangements whereby the men were operated upon in clinics and by surgeons of their own choice proved unsatisfactory and it was found necessary to have all tonsillectomies performed by one surgeon familiar with the circumstances. Submission of a carrier to tonsillectomy is not compulsory except that he must otherwise retire from employment at certified dairies.

C. W. Bonynge, Am. J. Pub. Health, *24*: 1031 (October), 1934.

Endemic Typhus

Brill's disease or endemic typhus fever has secured a firm footing in Alabama and during the past two years has become a serious problem in this and some other southern states. In Alabama, 823 cases with 35 deaths occurred in 1933. The disease has spread from urban centres and the incidence is now in rural areas. The sex and race distribution for 1,029 cases was as follows: white, 608 males and 344 females; coloured, 45 males and 52 females. The highest incidence occurred from 25 to 45 years. For the 1,060 cases reported in 1932 and 1933 the case fatality rate was 4.3 per cent. The reservoir of infection is the rat and the vector the rat-flea. During 1933 an extensive rat destruction campaign was undertaken, some 4,000,000 rats being destroyed. The effects of this destruction are still to be determined but typhus has not shown the expected incidence in the early months of 1934.

J. N. Baker, James G. McAlpine and D. G. Gill, Am. J. Pub. Health, *24*: 1068 (October), 1934.

The Social Incidence of Rheumatic Heart Disease

A review of the medical records of 5,758 New Haven public school children showed that the incidence of organic systolic murmurs, presumably of rheumatic origin, was 1.5 times higher among children from "poorer" districts than "better" districts. A careful clinical study of a large group of children in urban, suburban and rural public schools showed that the incidence of rheumatic heart disease among pupils in a "poor" urban public school to be 1.5 times that in a "good" urban school, but 8 times that in a small group of urban private school pupils. The average incidence of rheumatic heart disease in pupils attending the two urban public schools was about twice that among pupils of similar age attending rural and suburban schools.

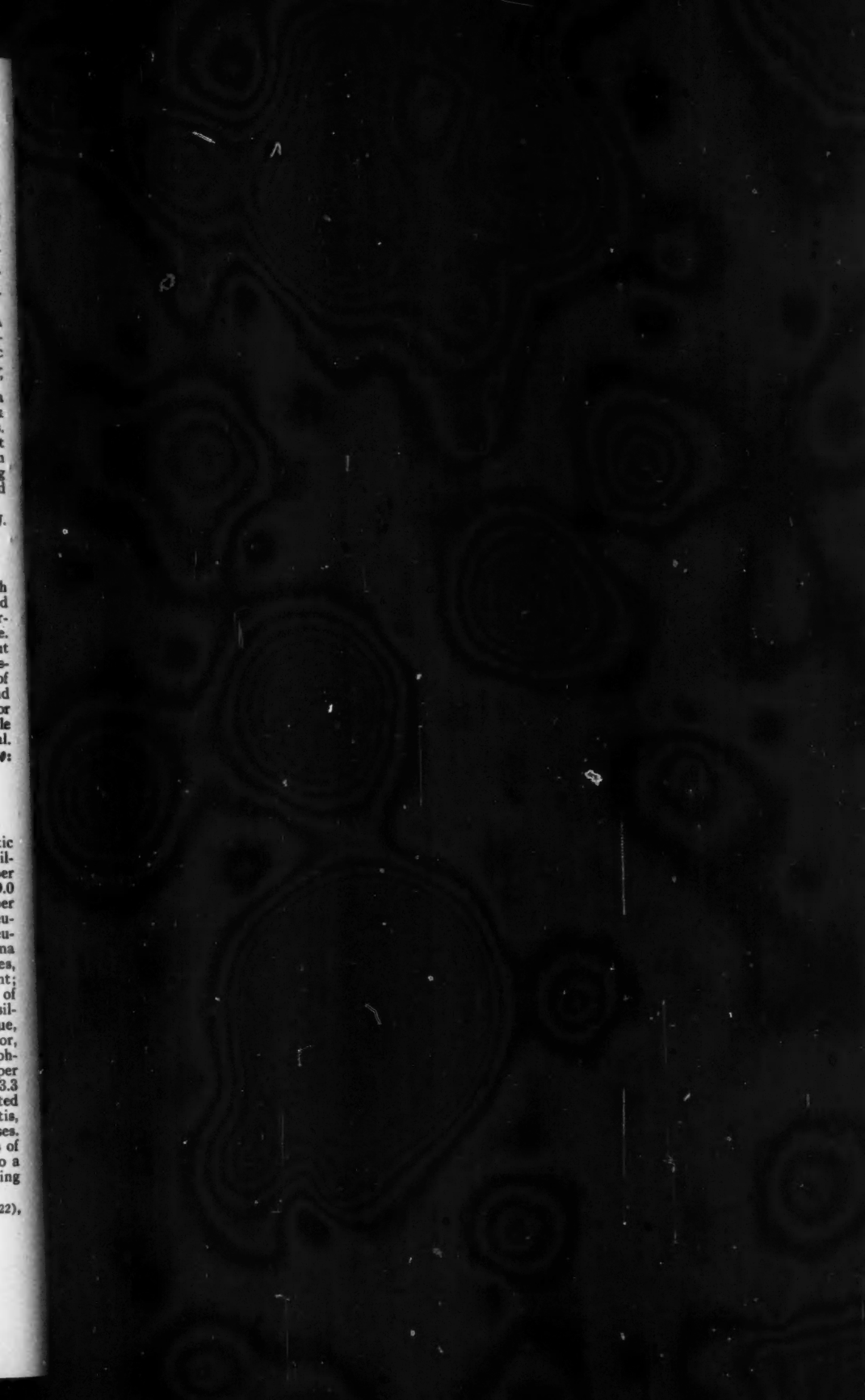
Paul, Harrison, Salinger and DeForest, Am. J. Med. Sci., *188*: 301, 1934.

Epidemiology of Whooping Cough

The hypothesis that certain persons with non-specific bronchitis really have aborted whooping cough was investigated. No carriers were detected who were symptom-free. In a group of children with obstinate but atypical cough, whooping cough was diagnosed from cough plate findings, ultimate proof being the fact that younger brothers and sisters developed the disease. Atypical or missed cases were concluded to be responsible for an outbreak in an infant ward in hospital.

C. Hunermann, Deutsche med. Wchnschr., *60*: 978, 1934.

Factors that Influence Rheumatic Disease in Children

The incidence of the major rheumatic manifestations among 1,240 rheumatic children were found to be: pancarditis, 64.2 per cent; rheumatic fever (severe arthritis), 39.0 per cent; joint pains (mild arthritis), 32.4 per cent; chorea, 29.0 per cent; muscular rheumatism (growing pains), 18.3 per cent; rheumatic pneumonia, 2.8 per cent; erythema modosum, 1.9 per cent; rheumatic nodules, 1.3 per cent; rheumatic pleurisy, 1.1 per cent; purpura, 0.4 per cent. The incidence of minor rheumatic manifestations was: tonsillitis and sore throat, 42.9 per cent; fatigue, 35.5 per cent; anorexia, 33.5 per cent; pallor, 30.3 per cent; epistaxis, 15.0 per cent; cephalgia, 5.8 per cent; abdominal pain, 4.5 per cent; cardiodynia, 3.6 per cent; nausea, 3.3 per cent. Tonsillitis and sore throat existed immediately prior to an attack of arthritis, chorea or endocarditis in 43 per cent of cases. In the series there were 33 under 2 years of age, the frequency increasing gradually to a maximum at the 10th year and then declining rapidly.

A. D. Kaiser, J.A.M.A., *103*: 886 (Sept. 22), 1934.